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A R T I C L E S

Environmental Law. Disrupted.

by Inara Scott, David Takacs, Rebecca Bratspies, Vanessa Casado Pérez, Robin Kundis Craig, Keith Hirokawa, Blake Hudson, Sarah Krakoff, Katrina Fischer Kuh, Jessica Owley, Melissa Powers, Shannon Roesler, Jonathan Rosenbloom, J.B. Ruhl, and Erin Ryan

Summary

The U.S. regulatory environment is changing rapidly, at the same time that visible and profound impacts of climate change are already being felt throughout the world, and enormous, potentially existential threats loom in the not-so-distant future. What does it mean to think about and practice environmental law in this setting? In this latest in a biannual series of postings and essays, the authors, members of the Environmental Law Collaborative (ELC), have taken on the question of whether environmental law as we currently know it is up to the job of addressing these threats; and, if not, what the path forward should be.

Authors' Note: The Environmental Law Collaborative (ELC) comprises a rotating group of law professors who assemble every other year to think, discuss, and write on an important and intriguing theme in environmental law. The goals of this meeting are both scholarly and practical, as ELC participants seek to use their disparate areas of scholarly expertise to study trends and important events in the law, and ultimately to improve the environmental conditions of the world in which we live. The ELC would like to thank the Environmental Law Institute for its continued support of these efforts, which have resulted in multiple collections of essays and two full-length books. We would also like to thank the Drake University Law School and Albany Law School for their support of this project.

In 2017, the U.S. regulatory environment began a period of intense change, even as the world witnessed the escalation of visible and profound impacts from climate change. Alongside these events, and with full knowledge of the limited time left in which to address existential environmental challenges, the authors, as participants in the 2018 Environmental Law Collaborative, considered whether environmental law as we know it is up to the task of meeting these ongoing, escalating, and perilous threats.

Each of the following sections considers where environmental law should be headed in the next decade or more, and how we might get there. These short pieces consider whether and how to reframe and reshape—and, ultimately, disrupt—the environmental law landscape to better address the catastrophic, synergistic, and disruptive ecological changes portended by climate change, biodiversity destruction, and social inequality. They consider at a deep level what it might be like if we radically and fundamentally reoriented our environmental law and policy agenda, and ask: is this possible, desirable, or both?

As we are a diverse group of scholars and thinkers, our conclusions are by no means uniform, but they share a common thread: this is not time for business as usual. The system requires significant, potentially disruptive changes, some of which may make us profoundly uncomfortable. We hope these essays disrupt your thinking in provocative, productive ways, and we look forward to opening a dialog with you about how we can reframe, reshape, and ultimately disrupt environmental law to meet the challenges of our day.

I. Is It Time to Say Goodbye to Environmental Law?

This section was authored by Inara Scott, Gomo Family Professor and Assistant Dean for Teaching and Learning Excellence, College of Business, Oregon State University.

Besides being a legal scholar, I also write fiction. My first published book was a young adult novel, and it was in publishing that I became familiar with the problem of shelving. You see, before you can sell your book, you have to identify the genre. That designation tells booksellers and librarians where to shelve the book; for e-books, it identifies what category to put it in for online searching.

If you can't label it, they can't sell it.

Picking a genre determines how the book is marketed and who becomes the audience. Genres also carry deeply embedded connotations: for example, who do you picture reading romance novels? Who do you picture writing them?

The boundaries of genres can make it impossible to write and sell certain kinds of stories. Understanding this, authors consider where their books will be shelved *before* they write, and modify their story ideas accordingly. Until the 1970s, few books were written with teenage protagonists because there was no such genre as “young adult”—the genre of books for young people aged 12-18 was not officially created until the 1960s.¹

Like fiction authors, lawyers are trained to think about law in discrete categories. Interdisciplinary efforts may be viewed with skeptical or even disapproving eyes.² As a professor teaching environmental law at a business school, I can say from firsthand experience that many do not consider me to be part of the “environmental law” community simply because of where I teach.

The Anthropocene—and, more specifically, climate change—offer existential challenges to the survival of humanity and life on this planet.³ Many instinctively turn to environmental law to solve these challenges. Unfortunately, I do not think the challenges we face will be solved by items on the environmental law shelf. No, I believe we need to start fresh, create a new genre, and leave environmental law firmly in the past.

To explain why, let's start with what the environmental law shelf currently contains. Most definitions of “environmental law” describe statutes and regulations that govern how people interact with the natural environment—the “natural environment” in this context being nonhuman species, plants, and natural resources.⁴ Environmental law is also generally understood to include pollution control and management of public lands and natural resources. The laws most would identify as the canon of the environmental law genre (e.g., the Endangered Species Act (ESA), the Clean Air Act (CAA), and the Clean Water Act (CWA))⁵ focus on this relatively straightforward human-environment formula. These laws generally arose out of a perceived environmental crisis, a desire to protect the environment from human harm, and

a need to ensure environmental resources were available for human consumption.

Over time, the popular understanding of environmental law, including this human-environment formula, created certain expectations for and limitations on the genre:

1. *Environmental law addresses interactions between humans and the natural environment, and ways to limit human actions in order to protect the environment.* Conversely, environmental law does not focus on human-to-human interactions or economic transactions. Matters having to do with corporate law, tax, and business are generally not included. It is only recently that energy law—including fossil fuel extraction and electric utility regulation—has been considered alongside or even linked to environmental law.⁶
2. *Environmental laws address narrow targets with narrow solutions.* For example, the ESA creates a mechanism for protecting individual species. It was not intended to create a mechanism for considering bigger questions (i.e., how do we protect biodiversity?).⁷
3. *Environmental law is furthered by liberal white activists. Environmental law is not relevant to conservatives, people of color, or people living in urban settings who do not like the woods.*⁸

Point number three is perhaps the most dangerous aspect of the environmental law shelf. In a time of virulent political division, environmental law, like anything associated with climate change, is associated with one perspective and one political party.⁹ Sadly, it is also associated with one race and one socioeconomic status, and negatively associated with strident activism.¹⁰ Overall, the percentage

1. Ashley Strickland, *A Brief History of Young Adult Literature*, CNN, Apr. 15, 2015, <https://www.cnn.com/2013/10/15/living/young-adult-fiction-evolution/index.html>.
2. Brian Tamanaha, *Why the Interdisciplinary Movement in Legal Academia Might Be a Bad Idea (for Most Law Schools)*, BALKANIZATION, Jan. 16, 2008, <https://balkin.blogspot.com/2008/01/why-interdisciplinary-movement-in-legal.html>.
3. Robert Macfarlane, *Generation Anthropocene: How Humans Have Altered the Planet for Ever*, GUARDIAN, Apr. 1, 2016, <https://www.theguardian.com/books/2016/apr/01/generation-anthropocene-altered-planet-for-ever>; Will Steffen et al., *Trajectories of the Earth System in the Anthropocene*, 115 PNAS 8252 (2018), available at <http://www.pnas.org/content/early/2018/08/07/1810141115.full>.
4. See, e.g., Wikipedia, *Environmental Law*, https://en.wikipedia.org/wiki/Environmental_law (last edited Nov. 27, 2018).
5. 16 U.S.C. §§1531-1544, ELR STAT. ESA §§2-18; 42 U.S.C. §§7401-7671q, ELR STAT. CAA §§101-618; 33 U.S.C. §§1251-1387, ELR STAT. FWPCA §§101-607.

6. Amy J. Wildermuth, *The Next Step: The Integration of Energy Law and Environmental Law*, 31 UTAH ENVTL. L. REV. 369, 380-83 (2011).
7. Sarah Gold, *The Endangered Species Act Won't Save Animals. It's Not Designed To.*, SLATE, May 13, 2017, http://www.slate.com/articles/health_and_science/science/2017/05/the_endangered_species_act_wasn_t_meant_to_save_the_animals.html; Daniel J. Rohlf, *Six Biological Reasons Why the Endangered Species Act Doesn't Work—And What to Do About It*, 5 CONSERVATION BIOLOGY 273, 275 (1991).
8. Jedediah Purdy, *Environmentalism's Racist History*, NEW YORKER, Aug. 13, 2015, <https://www.newyorker.com/news/news-desk/environmentalism-s-racist-history>.
9. Monica Anderson, *For Earth Day, Here's How Americans View Environmental Issues*, PEW RES. CENTER, Apr. 20, 2017, <http://www.pewresearch.org/fact-tank/2017/04/20/for-earth-day-heres-how-americans-view-environmental-issues/>.
10. Nicole Smith Dahmen, *The Overwhelming Whiteness of U.S. Environmentalism Is Hobbling the Fight Against Climate Change*, QUARTZ, Jan. 4, 2017, <https://qz.com/877447/the-overwhelming-whiteness-of-the-us-environmentalist-movement-is-hobbling-the-fight-against-climate-change/>; Nadia Y. Bashir et al., *The Ironic Impact of Activists: Negative Stereotypes Reduce Social Change Influence*, 43 EUR. J. SOC. PSYCHOL. 614, 624-25 (2013).

of Americans identifying as environmentalists is down to 42% (from 78% in 1991).¹¹

So, at this point in history, what the public thinks of as environmental law is law that does not address corporate governance or economic regulation; sees humans as separate from and antagonistic to the “natural world”; is narrowly focused on singular solutions in a complex world; and is not relevant to a diversity of perspectives or identities.

The danger here should be obvious from this list: many of the areas that currently fall out of the environmental law arena are precisely the ones that are essential to addressing the key challenges of the Anthropocene. Lawyers seeking to mitigate climate change *must* embrace corporate law as a key part of their toolbox.¹² Shareholder primacy and corporate law that fosters short-termism must be countered if we are to fight overuse of natural resources and a culture of unfettered consumerism.¹³ Smart infrastructure development and management of the electricity sector is essential to decarbonizing our economy.¹⁴ Understanding how to rethink the field of economics could create a path for sustainable development.¹⁵

To be clear, I am not talking about simply rebranding the environmental law shelf. Rather, just like the genre “young adult” had to be created to allow for the flowering of teenage literature, I believe we need to develop a new term to describe the legal challenge ahead of us.

I suggest we call this new genre “commons law.”

By using the term “commons,” I hope to draw attention to a few issues. First, I recognize that the traditional notion of the commons is a resource shared by the public that is not privately owned. However, commons law will refer to regulation of public *and* privately owned resources. Why? In the Anthropocene, I believe we must confront the reality that the earth is our commons, and whether activity takes place on private or publicly owned land, it can have significant impacts on all people.

Second, I hope to call up two environmental law stalwarts that may seem contradictory: Garret Hardin’s “The Tragedy of the Commons,” and Elinor Ostrom’s Nobel Prize-winning work regarding the governing of the commons.¹⁶ Hardin’s work is appropriate, because many would say we are living proof of the tragedy that occurs when communities share resources and individuals have the incentive to overuse and pollute, rather than conserve.

Ostrom’s work is also appropriate, however, because she provides a response to Hardin, offering ways to govern shared resources that do not end in collapse of the resource and do not require privatization.

Commons law must be broad, diverse, and big enough to contain seeming contradictions. It must recognize that creation of sustainable communities includes economic activity and must include, *or even focus on*, the regulation of this economic activity. It must address the governance of corporations that control the majority of global resources and threaten global ecosystems.¹⁷ It must also recognize the value in nonhuman species, biodiversity, and the preservation of spaces that are free from human development.

Commons law must be interdisciplinary and intersectional. It must avoid the trap of zero-sum environmentalism by casting a wide net for stakeholders and developing new legal tools that consider social justice alongside ecosystem protection.¹⁸ To meet the unique challenge of the Anthropocene we need to start thinking outside the environmental law shelf.

The canon of environmental law deserves a proud place in environmental history for its contributions to our planet. However, it does not serve us well as a model for the Anthropocene. Moving forward, I believe we need to leave environmental law to the past and start fresh. Educate new lawyers, activists, and community members in a different way of thinking, planning, and legislating.

The Anthropocene demands nothing less.

II. Aggressive Solutions to Disrupt Biodiversity Loss

This section was authored by David Takacs, Professor of Law, University of California Hastings College of the Law.

Biodiversity is disappearing rapidly, portending grave results not just for nonhuman species (and the populations and individuals that constitute them), but also for the functioning ecosystems they constitute, and the human communities that depend on diverse species and thriving ecosystems—that is to say, all of us. It is perhaps the single greatest problem our species faces.¹⁹ Even though 15% of the earth’s land has designated formal protection, about one-third of that land “is under intense human pressure,”²⁰ and only one-fourth of earth’s land surface remains free from substantial human impacts.²¹ Such degradation

11. Jeffery M. Jones, *Americans’ Identification as “Environmentalists” Down to 42%*, GALLUP, Apr. 22, 2016, <https://news.gallup.com/poll/190916/americans-identification-environmentalists-down.aspx>.

12. Sarah E. Light, *The Law of the Corporation as Environmental Law*, 71 STAN. L. REV. (forthcoming 2019), draft available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3228536.

13. Roger L. Martin, *Yes, Short-Termism Really Is a Problem*, HARV. BUS. REV. Oct. 9, 2015, <https://hbr.org/2015/10/yes-short-termism-really-is-a-problem>.

14. GRANGER MORGAN ET AL., PEW CENTER ON GLOBAL CLIMATE CHANGE, THE U.S. ELECTRIC POWER SECTOR AND CLIMATE CHANGE MITIGATION 64 (2005), available at <https://www.c2es.org/site/assets/uploads/2005/06/us-electric-power-sector-and-climate-change-mitigation.pdf>.

15. *What on Earth Is the Doughnut?*, KATE RAWORTH, <https://www.kateraworth.com/doughnut/> (last visited Nov. 26, 2018).

16. Garrett Hardin, *The Tragedy of the Commons*, 162 SCIENCE 1243-48 (1968); ELINOR OSTROM, GOVERNING THE COMMONS: THE EVOLUTION OF COLLECTIVE ACTION (1990).

17. Andy Coghlan & Debora MacKenzie, *Revealed—The Capitalist Network That Runs the World*, NEW SCIENTIST, Oct. 19, 2011, <https://www.newscientist.com/article/mg21228354-500-revealed-the-capitalist-network-that-runs-the-world/>.

18. Shalanda Baker et al., *Beyond Zero-Sum Environmentalism*, 47 ELR 10328 (Apr. 2017).

19. *Global Biodiversity Continues to Decline, According to New Reports From IPBES*, INT’L SCI. COUNCIL, Mar. 23, 2018, <https://council.science/current/news/global-biodiversity-continues-to-decline-according-to-new-reports-from-ipbes>.

20. Kendall R. Jones et al., *One-Third of Global Protected Land Is Under Intense Human Pressure*, 360 SCIENCE 788 (2018).

21. *Global Biodiversity Continues to Decline, According to New Reports From IPBES*, *supra* note 19.

harms the well-being of more than three billion people, and consumes more than 10% of annual global gross product through loss of biodiversity and ecosystem services.²² Only 13.2% of oceans are “wilderness,” and only 4.9% of those areas are within protected areas.²³

While cultivation (agriculture, ranching, and forestry) and direct exploitation remain the gravest harms to biodiversity,²⁴ climate change increasingly threatens biodiversity as species are unable to adapt to a rapidly and chaotically changing world: our current, static methods of conserving species become increasingly inadequate if we do not preserve or restore habitats that species will need in a climate-addled future.²⁵

We have made strides making laws that constrain humans from wantonly destroying *everything*. The need for conservation is a customary norm around the world. Nearly all nations have acceded to the Convention on Biological Diversity, and nearly all nations make some attempts to preserve their genetic heritage, with laws that sustain endangered species and/or protect land important to vital ecosystems and the biodiversity they sustain.

But the cataclysm of species annihilation proceeds apace. According to the International Union for Conservation of Nature (IUCN), more than 26,000 species are threatened with extinction, including 41% of amphibian species, 24% of mammal species, and 13% of bird species facing grave extinction threats.²⁶ The human population is projected to grow to nine billion by 2050 and likely to 11 billion by 2100,²⁷ while the average person’s buying power and consumption will grow by 150%. Our laws to conserve are not keeping pace with our drive to destroy.

To stave off a disastrous disruption in human and non-human survival, law needs to evolve quickly *and* radically. I am not challenging current legal foci on endangered species and protected lands, which, at least, concentrate easy-to-identify entities (I do know what a bald eagle is, but might have trouble drawing the parameters of a given ecosystem type), and has meant that some species that would otherwise be gone still live alongside us. We can certainly exponentially ramp up what we have been doing.²⁸ Nor am I advocating one or more of the following legal disruptions

as the ones we *ought* to choose. But we do have to rethink, drastically, our current approaches to living alongside biodiversity if we are to have ample biodiversity among which to live, and if human civilization is to be sustained in some recognizable form.

E.O. Wilson and other prominent conservation biologists proposed setting aside “half for nature.”²⁹ Protected areas do help biodiversity survive. If done smartly³⁰—with careful planning to conserve megadiverse areas that human communities depend upon for local and global ecosystem services—biologists estimate we could steward 85% of nonhuman species while sustaining the human communities that depend upon them.³¹

This would also require that the law evolve from a static conception of species and landscapes—put a fence around an area, manage species in forms and places they have long been—to a more dynamic form grounded in pinpoint adaptive management. We would need to think about maintaining evolutionary potential outside of formally protected areas so that species could migrate, and develop nimble systems for prioritizing high-level protection as areas formally protected for species no longer suit their needs in a changing climate. Law would need to specify performance standards for areas and species of concern (i.e., ecological indicators or benchmarks that must be met), and, if not, required pathways to change how we are doing what we are doing. Managers would constantly be measuring, monitoring, reporting, and verifying in accordance with the standards.³² This would also result in greater employment for local people as biodiversity managers, green jobs rooted in caring for the earth.

Current efforts to conceptualize and operationalize “nature’s contributions to people” broaden our notion of “ecosystem services.”³³ Including harder-to-quantify contributions of biodiversity to our well-being may result in being more inclusive in who gets to define what those contributions are, and thus what should be preserved. For selected areas, law might provide management autonomy with transfer of property rights for local guardians with a track record of care and stewardship. Law would need to be nimble and place-specific about who are the legally mandated managers, who monitors that performance standards are being met, and what are the legal consequences for derogation from those standards.

Concerted, focused, effective efforts to stave off biodiversity loss will likely be very, very expensive. To afford this, particularly in the global South (but even in the North, where no country comes close to preserving “half the earth,” or are successfully staunching species loss), would be to take the legal principle of common but different-

22. *Summary for Policymakers of the Thematic Assessment of Land Degradation and Restoration*, Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Doc. IPBES/6/L.9/Rev.1 (2018), https://council.science/cms/2018/03/ipbes-6-l9_en.pdf.

23. Kendall R. Jones et al., *The Location and Protection Status of Earth’s Diminishing Marine Wilderness*, 28 *CURRENT BIOLOGY* 2506 (2018).

24. Sean L. Maxwell et al., *Biodiversity: The Ravages of Guns, Nets, and Bulldozers*, 536 *NATURE* 143 (2016).

25. Wendy B. Foden et al., *Identifying the World’s Most Climate Change Vulnerable Species: A Systematic Trait-Based Assessment of All Birds, Amphibians, and Corals*, *PLOS ONE*, June 12, 2013, <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0065427>.

26. The IUCN Red List of Threatened Species, *Home Page*, <https://www.iucnredlist.org> (last visited Nov. 26, 2018).

27. Damian Carrington, *World Population to Hit 11bn in 2100—With 70% Chance of Continuous Rise*, *GUARDIAN*, Sept. 18, 2014.

28. Jessica Owley & David Takacs, *Flexible Conservation in Uncertain Times*, in *CONTEMPORARY ISSUES IN CLIMATE CHANGE LAW AND POLICY: ESSAYS INSPIRED BY THE IPCC 65* (Robin Kundis Craig & Stephen R. Miller eds., Envtl. L. Inst. 2016).

29. Half-Earth Project, *Home Page*, <https://www.half-earthproject.org> (last visited Nov. 26, 2018).

30. James E.M. Watson et al., *The Performance and Potential of Protected Areas*, 515 *NATURE* 67 (2014).

31. Half-Earth Project, *supra* note 29.

32. David Takacs, *Forest Carbon (REDD+), Repairing International Trust, and Reciprocal Contractual Sovereignty*, 37 *Vt. L. Rev.* 653 (2013).

33. Sandra Diaz et al., *Assessing Nature’s Contributions to People*, 359 *SCIENCE* 270 (2018).

ated responsibilities (CBDR) seriously.³⁴ Wealthy countries (and individuals) have become wealthy by exploiting lands and species of the South (or by exploiting other citizens) without proper compensation. The same entities have polluted the global atmospheric commons without paying for the externalities of that pollution.

Laws implementing CBDR would alleviate the poverty that requires the poor to degrade nonhuman landscapes, and to pay for land and species conservation, including employment for a cadre of conservation professionals and paraprofessionals. All of this could be abetted by negotiating a new multilateral environmental agreement to replace the weak voluntary commitments embedded in the Convention on Biological Diversity, or by amending that agreement to put some teeth into it, including requirements to implement CBDR aggressively.

Law *has* begun, increasingly, to ask those who degrade the global environment to pay for such degradation. Under the aegis of the polluter-pays principle, REDD+ (reducing emissions from deforestation and forest degradation) allows greenhouse gas polluters to “offset” their pollution by investing in reforestation or avoiding deforestation, allowing trees to work their photosynthetic magic by sucking up carbon dioxide (CO₂).³⁵ Biodiversity offsetting takes this logic one step further, by asking developers to offset damage to targeted species or ecosystems by paying others elsewhere to conserve those species.³⁶

Both practices are controversial; but to stave off mass extinctions, when done right and on a large, monitored scale, market mechanisms could inject many billions of dollars into government conservation coffers, particularly to incentivize conservation on private lands (where otherwise conservation would not occur). State-of-the-art collaborations between regional planners, social scientists, community groups representing disparate interests, climatologists, and conservation biologists could predict where species and ecosystems might likely migrate, predict where human communities are likely to expand, and prioritize migration corridors that will allow natural communities to adapt to climate change; market mechanisms can direct and prioritize conservation in these areas.

Desperate and wildly ecologically changing times require us to rethink all of our notions of what “belongs” where. Law could permit and define parameters on aggressive conservation translocation. In a paradigm change from traditional static notions of biodiversity conservation, we might assist colonization and introduce species to where they had historically been, exporting species from places where habitat no longer exists or soon will not exist due to changing climates or growing human demands.³⁷

These can be reintroductions to where species have been and now disappeared, or reinforcement of individuals into existing populations of that species. The “rewilding” movement focuses on top carnivores whose (re)introduction revitalizes ecosystem functions and augments species diversity.³⁸ Such programs could also consider introducing species that have not existed in a place; that would be “invasive,” but nonetheless might have some chance of fulfilling ecological roles and adaptation to the onslaught of climate change.³⁹

And given that we are already radically altering what may exist and where, we might use genetic manipulation or “rescue” for endangered species. Taking this one step further, we could resuscitate extinct species through genetic manipulation.⁴⁰ So, for example, organizations like Revive & Restore seek “de-extinction,” the return of the woolly mammoth, passenger pigeon, and heath hen through tissue biobanking, intense genetic (re)sequencing, and cloning.⁴¹

A different line of thinking suggests that radical conservation interventions—put a fence around half the earth’s surface, manipulate the genetic endowment of life—are dystopic interventions that totally miss the point that poverty and inequality drive biodiversity loss, and that “put a fence around and protect it” conservation leads to human dislocations, political upheaval, and general human misery.⁴² The only sustainable way to maintain nonhuman communities (and thus human communities) is to change the paradigmatic drive toward ever-greater economic growth that inevitably degrades ecological and human capital, and to transfuse wealth from overconsuming rich to disenfranchised poor, North to South.

The ultimate sustainable route to biodiversity conservation is through what I call “deep equity” (i.e., a fundamental change in what we value and how we operationalize those values in law).⁴³ Deeply equitable solutions maximize and synergize individual, community, and nonhuman health and potential. Such values, as they become deeply rooted in societies, would also become deeply rooted in those societies’ laws, creating a virtuous circle. One such value change might be reflected were we to give various different biological (or nonbiological) entities fundamental rights, reflecting our expanding conception of beings to whom we owe ethical obligations, with laws implementing those obligations.⁴⁴ Or, simply, the wealthy need to con-

34. David Takacs, *Forest Carbon Projects and International Law: A Deep Equity Legal Analysis*, 22 GEO. INT’L ENVTL. L. REV. 521 (2010).

35. *Id.*

36. David Takacs, *Are Koalas Fungible? Biodiversity Offsetting and the Law*, 26 N.Y.U. ENVTL. L.J. 161 (2018).

37. Philip J. Seddon et al., *The Risks of Assisted Colonization*, 23 CONSERVATION BIOLOGY 788 (2009).

38. Video: How Wolves Change Rivers (Sustainable Human 2014), <https://www.youtube.com/watch?v=ysa5OBhXz-Q>.

39. IUCN, GUIDELINES FOR REINTRODUCTIONS AND OTHER CONSERVATION TRANSLOCATIONS (2013), <https://portals.iucn.org/library/efiles/documents/2013-009.pdf>; Maya L. Kapoor, *Should We Relocate Species That Can’t Keep Up With Climate Change?*, MOTHER JONES, Aug. 26, 2018.

40. Steph Yin, *Scientists See Promise in Resurrecting These Rhinos That Are Nearly Extinct*, N.Y. TIMES, May 24, 2018, <https://www.nytimes.com/2018/05/24/science/northern-white-rhinoceros-resurrecting.html>.

41. Revive & Restore, *Home Page*, <https://reviverestore.org/> (last visited Nov. 26, 2018).

42. Bram Büscher et al., *Half Earth or Whole Earth? Radical Ideas for Conservation, and Their Implications*, 51 ORYX 407 (2017).

43. Takacs, *supra* note 34.

44. Jens Benöhr & Patrick J. Lynch, *Should Rivers Have Rights? A Growing Movement Says It’s About Time*, YALE ENV’T 360, Aug. 14, 2018, <https://e360.yale.edu/>

sume much, much less than current rates, reflecting the urgency of our situation.

But law evolves slowly, and we are unlikely to pursue many of these in the short term, and in the long term it may be too late to preserve large swathes of functioning ecosystems or the magnificent creatures that inhabit them, or to save our own species that ineluctably depends upon these ecosystems. And that is the ultimate disruption that environmental law has thus far been ill-equipped to prevent.

III. Now Is the Moment!

This section was authored by Rebecca Bratspies, Professor of Law at the City University of New York School of Law and the Founding Director of the Center for Urban Environmental Reform.

The choreographer George Balanchine is famous for telling his dancers, “Why are you holding back? What are you saving for—for another time? There are no other times. There is only now. Right now.”⁴⁵

While dance and environmental law are generally not considered the most closely aligned fields, I have been thinking about Balanchine’s words lately as I try to respond to the current administration’s approach to climate change, and to environmental law more generally.

On October 6, 2018, the Intergovernmental Panel on Climate Change (IPCC) issued a report titled *Global Warming of 1.5°C*.⁴⁶ This report underscores the vital importance of “now” that Balanchine was trying to convey to his dancers. The report emphasized that the world is not yet committed to catastrophe—it is still possible to keep anthropogenic climate change below 1.5°C of warming.⁴⁷ However, there is only a small window of time in which we can change our trajectory and limit the damages of climate change. Thus, the IPCC unambiguously states that the need for immediate action is urgent and that averting catastrophe will require “rapid and far-reaching transitions” that “are unprecedented in terms of scale.”⁴⁸ There are no other times. There is only now. Right now!

The U.S. national government seems set on preventing any such transition. Announcing with great fanfare that the United States would withdraw from the Paris Agreement, the Donald Trump Administration is on the wrong side of history. Indeed, the government’s own reporting underscores just how dangerous that climate denial has become. The Fourth National Climate Assessment, quietly released the day after Thanksgiving, painted a clear

picture of the climate change impacts “already being felt in communities across the country.”⁴⁹ Nevertheless, with climate deniers occupying key executive branch positions,⁵⁰ the Administration alternates between bolstering the coal industry,⁵¹ undoing laws preventing methane and hydrofluorocarbon emissions, and reducing fuel efficiency standards.⁵²

Indeed, the Trump Administration recently used the prediction that disastrous warming was inevitable as a reason to allow increased carbon emissions from vehicles. Noting that the proposed rollback was “projected to result in only very minor increases in global CO₂ concentrations and associated impacts,”⁵³ the Administration rationalized that any such restrictions were too small to matter because climate change is a global issue. This was, of course, precisely the argument rejected in *Massachusetts v. Environmental Protection Agency*.⁵⁴ In that case, the U.S. Environmental Protection Agency (EPA) had argued that because greenhouse gas emissions caused widespread harm, there was no “realistic possibility . . . that the relief petitioners seek would mitigate global climate change and remedy their injuries.”⁵⁵ The U.S. Supreme Court flatly rejected this contention, noting that “the United States transportation sector emits an enormous quantity of carbon dioxide”⁵⁶ and that restricting these emissions would be an incremental step that might reduce the risk to some extent.⁵⁷

Yet even as the federal government backslides, large portions of the country are forging ahead. All eyes are on the cities, states, businesses, and other organs of civil society that have pledged to take action on their own. The 3,600-member strong We Are Still In⁵⁸ coalition, for example, has taken up the task of achieving the United States’ nationally determined contribution to the Paris Agreement⁵⁹ without federal leadership. Hundreds of subnational and private actors have submitted pledges to reduce their carbon emissions. These commitments put us on track to come close to achieving our Paris obligations. And technology is rapidly leaving carbon behind. Even

features/should-rivers-have-rights-a-growing-movement-says-its-about-time.

45. Margaret Fuhrer, *The Best Balanchine Quotes in Honor of Mr. B.’s Birthday*, DANCE SPIRIT, Jan. 22, 2018, <https://www.dancespirit.com/balanchine-quotes-birthday-2527739325.html>.

46. IPCC, GLOBAL WARMING OF 1.5°C (2018), <http://www.ipcc.ch/report/sr15/>.

47. IPCC, GLOBAL WARMING OF 1.5°C: SUMMARY FOR POLICYMAKERS A.3 (2018), https://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf.

48. *Id.* at C.2.

49. US Global Climate Research Program, *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II: Summary Findings* 1 (2018), <https://nca2018.globalchange.gov/>.

50. Rebecca Bratspies, *The Climate for Human Rights*, 72 MIAMI L. REV. 308 (2018) (listing climate deniers in key administration positions).

51. Emission Guidelines for Greenhouse Gas Emissions From Existing Electric Utility Generating Units; Revisions to Emission Guideline Implementing Regulations; Revisions to New Source Review Program, 83 Fed. Reg. 44746 (proposed Aug. 31, 2018).

52. NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION, DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE SAFER AFFORDABLE FUEL EFFICIENT (SAFE) VEHICLES RULE FOR MODEL YEAR 2021-2026 PASSENGER CARS AND LIGHT TRUCKS (2018).

53. *Id.* at 8-73.

54. 549 U.S. 497, 37 ELR 20075 (2007).

55. *Id.* at 518-21.

56. *Id.* at 524-25.

57. *Id.*

58. We Are Still In, *Home Page*, <https://www.wearestillin.com> (last visited Nov. 26, 2018).

59. UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, UNITED STATES FIRST NDC SUBMISSION, <https://www4.unfccc.int/sites/ndc-staging/PublishedDocuments/United%20States%20of%20America%20First/U.S.A.%20First%20NDC%20Submission.pdf>.

in the United States, renewables and electric cars are burgeoning, prompting the Climate Action Tracker to revise the United States' projected emissions downward despite federal intransigence.⁶⁰ "There are no other times. There is only now. Right now!"

Moreover, the rest of the world seems committed to a greener future. A Dutch appeals court ordered the Netherlands to ratchet up its climate ambitions.⁶¹ A host of similar lawsuits around the globe are pushing other countries to do the same.⁶² These lawsuits are changing the public narrative. Together with the IPCC report emphasizing that we are not yet committed to 1.5°C, the message is being heard: "There are no other times. There is only now. Right now!"

Perhaps the greatest signal that we may be experiencing a sea change is the emerging consensus on the human right to a healthy environment. On October 25, 2018, the United Nations special rapporteur for human rights and the environment addressed the United Nations General Assembly for the first time.⁶³ While the United States did not attend, many other countries did. Costa Rica, Slovenia, and Switzerland spoke strongly in favor of officially recognizing a human right to a healthy environment. Russia prefaced its remarks by stating that the Russian Federation recognized the right to a healthy environment. France has proposed its Global Compact for the Environment, which it describes as a "common road map for transforming our world."⁶⁴

Together, these developments suggest that there is a moment open for action. The U.S. mid-term elections gave us a hint of how the federal government might move forward. Just weeks after Democrats gained 40 U.S. House of Representatives seats, the U.S. Congress got its first bipartisan climate proposal in recent memory. Spearheaded by Rep. Ted Deutch (D-Fla.), the Energy Innovation and Climate Dividend Act⁶⁵ would reduce U.S. carbon emissions by 90% by 2015. Given hostility in the U.S. Senate and a president who tweets that every periodic cold spell proves that global warming is a hoax,⁶⁶ federal action remains

unlikely. Yet regardless of federal action or inaction, we can seize the chance, we can remake our world. Now is the time to think big, to think beyond the narrowing limits of existing environmental law to what a truly sustainable society would entail. There are no other times. There is only now. Right now!

IV. Liquid Business

This section was authored by Vanessa Casado Pérez, Associate Professor of Law and Research Associate Professor of Agricultural Economics, Texas A&M University School of Law.

The aphorism "water is the new oil" is now truer than it has ever been. While many use the phrase to suggest that water is as scarce and valuable as oil once was, it is also true in another sense: speculation in water markets now rivals speculation in oil markets. Oddly, however, water scarcity has not translated into a higher price for water, as it has done in oil. But this anomaly may be on the verge of changing as international investors start to enter the business of climate change.⁶⁷ From oil tycoons like T. Boone Pickens⁶⁸ to international hedge funds,⁶⁹ investment in all things water is on the rise. And while many deny climate change, the market does not. Since climate change is widely expected to induce scarcity in water supplies, business investments in the water market are increasing rapidly.⁷⁰

The alarm has gone off. Those who believe markets should not commodify water are appalled by the role that investment moguls play: all the investments in the water business may lead to price increases for water. There is some merit in valuing water as a scarce resource so that we do not misuse it. The more expensive it is, the shorter our showers would be and the more thoughtful the choice of crops and irrigation techniques will be.

But using the market to allocate water also gives rise to two concerns: the affordability crisis for low-income populations, and the inability to capture certain intangible values, such as environmental protection, in a single monetary price.⁷¹ The first concern is often answered by saying that the amount of water needed to satisfy our basic needs is around 1% of the total water used, so we could let the market deal with the rest and figure out how to allo-

60. Climate Action Tracker, *USA*, <https://climateactiontracker.org/countries/usa/> (last visited Nov. 26, 2018).

61. Netherlands/Urgenda Found., Hague Court of Appeal, 9 Oct. 2018, No. 200.178.245/01, <https://uitspraken.rechtspraak.nl/inziendocument?id=EC.LI.NL:GHDHA:2018:2610>.

62. Urgenda, *Global Climate Litigation*, <https://www.urgenda.nl/en/themas/climate-case/global-climate-litigation/> (last visited Nov. 26, 2018).

63. David R. Boyd, Special Rapporteur on Human Rights and the Environment, Address at the 73d Session of the United Nations General Assembly (Oct. 25, 2018), <https://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=23789&LangID=E>.

64. Permanent Mission of France to the United Nations in New York, *The Global Pact for the Environment*, <https://onu.delegfrance.org/The-Global-Pact-for-the-Environnement> (last modified July 17, 2018).

65. Energy Innovation and Climate Dividend Act, 115th Cong. 2d Sess. (Nov. 28, 2018) https://teddeutch.house.gov/uploadedfiles/energy_innovation_and_carbon_dividend_act_-_deutch.pdf.

66. Tom Embury-Dennis, *Trump Confuses Climate Change With Weather, Prompting Widespread Despair*, THE INDEPENDENT, Nov. 21, 2018, <https://www.independent.co.uk/news/world/americas/trump-tweet-global-warming-climate-change-thanksgiving-driving-traffic-a8646081.html>; see also Dylan Matthews, *Donald Trump Has Tweeted Climate Change Skepticism 115 Times. Here's All of Them*, Vox, June 1, 2017, <https://www.vox.com/policy-and-politics/2017/6/1/15726472/trump-tweets-global-warming-paris-climate-agreement>.

67. McKENZIE FUNK, WINDFALL: THE BOOMING BUSINESS OF GLOBAL WARMING (2014). Nonetheless, the very term "water market" is ambiguous. Those who criticize water markets often conflate trading of water rights with privatization of water utilities. That is a mistake. It is both too broad, in that it encompasses more than trading the water itself, and too narrow, in that water investors look beyond water rights and water utilities to things like water conservation and wastewater. VANESSA CASADO PÉREZ, THE ROLE OF GOVERNMENT IN WATER MARKETS 15-16 (2017).

68. Sandi Zellmer, *The Anti-Speculation Doctrine and Its Implications for Collaborative Water Management*, 8 NEV. L.J. 994, 999 (2008).

69. Abraham Lustgarten & Propublica, *A Free-Market Plan to Save the American West From Drought*, ATLANTIC, Mar. 2016, <https://www.theatlantic.com/magazine/archive/2016/03/a-plan-to-save-the-american-west-from-drought/426846/>.

70. Zellmer, *supra* note 68, at 995.

71. Vanessa Casado Pérez, *Missing Water Markets: A Cautionary Tale of Governmental Failure*, 23 N.Y.U. ENVTL. L.J. 157, 164 (2015).

cate the 1% cheaply.⁷² Environmental regulations, such as water quality or minimum instream flows, could address the second.

While the answers to these concerns may not be reassuring, we should take comfort in the fact that water is somewhat speculation-resistant,⁷³ at least compared to oil. Unlike oil regulation, the regulation of markets for water rights has built-in mechanisms to prevent speculation. These constraints in water markets have driven investments toward related industries, like water conservation technology or reuse.

Water rights can be traded in the western United States and in other jurisdictions such as Australia or Chile. Trade includes leases and sales of water rights that give the buyer the right to use water if it is available. Generally, the transactions are subject to two layers of protection. The first is administrative review of the transaction. Transactions are not approved if they injure third parties or the environment and, thus, are often subject to the approval of an administrative agency. Water rights are defined across several variables, including the point of diversion and the type of use. A transaction will normally imply a change in either or both of those variables. A common transaction might be one between an agricultural right holder and an urban consumer, because the latter often has a higher willingness to pay and a less elastic demand curve. In the U.S. West, these types of transactions have brought flexibility to water allocation systems, where the majority of water rights were allocated when agriculture was the main economic activity and large cities and suburban areas with luscious lawns had not developed. Those transactions should make the farmer realize the opportunity cost of using water.

Another layer of protection, and more relevant for the purposes of speculation, is the forfeiture provision included in all prior appropriation states and many other jurisdictions. These forfeiture provisions mandate that holders of water rights use the water. If they do not use it for a certain period, usually around five years, they may lose the water right.⁷⁴ So, unlike with real estate or stocks and bonds, where owners can wait for the market to peak and then sell their assets, in water markets, owners cannot engage in this kind of “wait and see.” That said, if water becomes valuable enough, investors may find a way around these rules. One company, Water Asset Management, is taking that route—considering land an accessory. It focuses on water itself but to get to it, it buys land and it tries to make use of the land to break even.⁷⁵

The question is whether there is something that water law could do to stop big players from dominating the water

market broadly understood, beyond the forfeiture provision and the approval requirements. It can. Further, water law may be able to target the surrounding industries in which investors are interested. First, regulators could limit the number of shares a single entity could accumulate. One of the main fears is a market dominated by big players. While antitrust regulations are set up to deal with monopolistic practices that harm the consumer, water law can take a page from other natural resources markets and avoid concentration by limiting the amount of water rights that can be accumulated in the same hands. In fisheries’ individual transferable quotas (ITQs) programs, there are limits on the shares of the total allowable catch that a single ITQ owner can acquire.⁷⁶ This should prevent the concentration of the agricultural industry in a few hands and avoid displacing local farmers.

Second, groundwater should be subject to a permit system like surface water is.⁷⁷ Investment companies are keen on exploiting lax regulations, and have noticed that in many places groundwater may be more readily accessible as an investment.⁷⁸ The separate regulation of a unique resource of surface and groundwater denies the science and makes both, given their interconnection, overexploited.

Third, wastewater regulation needs to be properly designed. As it stands today, return flow belongs to the user who diverted the water. A city may have a water right and divert water from the river. The city does not consume all of it. It usually treats the wastewater and sends it back to the river, where downstream users use it. But if a city decided to reuse wastewater before bringing it back to the river, it could do so, leaving downstream users without the water they have relied on for decades.⁷⁹ In some states like Arizona, cities may be able to not only reuse it in their area, but to sell the water as a commodity because cleaned-up wastewater is considered a new product. While incentives to invest in reuse are paramount, water regulations need to better address the effect on downstream users and the ecosystem needs.

An adage seems appropriate to close. Mark Twain purportedly said, “Whisky is for drinking and water is for fighting.” Water scarcity will certainly cause fights, as there will not be enough water for all users. Given the business of water in times of climate change, the question that lingers is whether small water right holders and the environment can put up a fight against these powerful businesses. The three water law measures stated in this essay may be able to help.

72. Vanessa Casado Pérez, *Go With the Flow: Lessons From Water Management and Water Markets*, in GOVERNING ACCESS TO ESSENTIAL RESOURCES 241 (Katharina Pistor & Olivier De Schutter eds., Columbia Univ. Press 2016). See also Buzz Thompson, *Water as a Public Commodity*, 95 MARQ. L. REV. 17, 38 (2011).

73. Zellmer, *supra* note 68, at 997-98.

74. *Id.* at 1005.

75. Lustgarten & Propublica, *supra* note 69.

76. Katrina Wyman, *Second Generation Property Rights*, NAT. RESOURCES J. (forthcoming 2018) (on file with the author).

77. Barton H. Thompson Jr., *Beyond Connections: Pursuing Multidimensional Conjunctive Management*, 47 IDAHO L. REV. 273, 275 (2011).

78. Tate Dwinell, *T. Boone Pickens Invests in Water—Should You?*, SEEKING ALPHA, Jan. 17, 2007, <https://seekingalpha.com/article/24410-t-boone-pickens-invests-in-water-should-you>.

79. Vanessa Casado Pérez, *Inefficient Efficiency: Crying Over Spilled Water*, 46 ELR 11046 (Dec. 2016).

V. Does the President Really Matter to U.S. Participation in International Environmental Law? A View From the Perspective of Oceans Law

This section was authored by Robin Kundis Craig, James I. Farr Presidential Endowed Professor of Law, University of Utah S.J. Quinney College of Law. This research was made possible, in part, through generous support from the Albert and Elaine Borchard Fund for Faculty Excellence.

How much do presidents really matter to the United States' participation in international environmental law?

Fairly obviously, presidential turnovers in the United States are absolutely critical to how the United States conducts its international relations. President George W. Bush's pursuit of Middle Eastern terrorists in the wake of 9/11, including wars in Iraq and Afghanistan, represents a far different engagement with the rest of the world regarding international terrorism than President Barack Obama's reliance on drones and attempts to bring American troops back home. In turn, President Obama's engagement with the rest of the world on climate change, including committing the United States to the Paris Agreement, represents a radically different path than the one President Trump has thus far chosen to walk with regard to the same issue. Indeed, President Trump's "America First" approach to international relations shows every sign of becoming one of the most idiosyncratic periods in the United States' presidentially driven relations with the rest of the world since at least the conclusion of World War II.

But how much does any of that matter to the United States' participation in international environmental law?

The issue, of course, is that the U.S. Constitution formulates treaty-making as a two-body problem: the president negotiates and signs, while the Senate advises and consents.⁸⁰ Failure of the United States to participate in international environmental law can occur at either stage. For example, President William Clinton signed⁸¹ but Congress refused to ratify⁸² the 1997 Kyoto Protocol to the 1992 United Nations Framework Convention on Climate Change (to which the United States remains, at least for now, a Party). Indeed, as of late August 2018, according to the U.S. Department of State, presidents have sent 42 treaties to the Senate that still await the Senate's advice and consent to ratification.⁸³

One of these 42 treaties is the 1982 United Nations Convention on the Law of the Sea (LOS).⁸⁴ President Ronald

Reagan refused to sign the treaty when it opened for signature while he was in office, but President Clinton signed it on July 29, 1994.⁸⁵ It has been sitting with the Senate since October 7, 1994⁸⁶—that is, through Presidents Clinton, Bush II, Obama, and, so far, Trump. Clearly, the identity of the chief executive has not mattered much to the United States' failure to ratify.

Perhaps perversely, however, the United States' non-ratification and the identity of the chief executive also do not seem to have mattered all that much to the treaty's operation—including in U.S. waters. Of the 193 United Nations Member States, 168 (including the European Union) have ratified this "constitution for the ocean,"⁸⁷ which went into effect on November 16, 1994.⁸⁸ The United States follows LOSC's jurisdictional provisions on the grounds that they are customary international law. Indeed, after refusing to sign the treaty, President Reagan first proclaimed a 200-nautical-mile exclusive economic zone for the United States, in March 1983,⁸⁹ then in December 1988 added a 12-nautical-mile territorial sea⁹⁰—both exactly as LOSC allows.

All subsequent presidents have accepted these proclamations. Finishing up, in September 1999, President Clinton proclaimed a contiguous zone for the United States out to 24 nautical miles⁹¹—and, again, all subsequent presidents have accepted that declaration. In addition, the United States ratified the supplemental Agreement for the Implementation of the Provisions of the Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks in August 1996, and this treaty came into force on December 11, 2001.⁹²

The United States has perhaps been most out of step with the rest of the world with regard to rights in the seabed. In September 1945, more than a decade before the first law of the sea conventions opened for signature in 1958, Presi-

85. See *id.* (noting the signing date, which is when President Clinton was in office, but also noting that the treaty opened for signature in 1982, when President Reagan was in office).

86. *Id.*

87. *United Nations Convention on the Law of the Sea: Status of the United Nations Convention on the Law of the Sea, of the Agreement Relating to the Implementation of Part XI of the Convention, and of the Agreement for the Implementation of the Provisions of the Convention Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks* (2018) [hereinafter *UNCLOS Status Chart*], http://www.un.org/depts/los/reference_files/status2018.pdf. Tommy T.B. Koh, president of the Third United Nations Conference on the Law of the Sea, described the treaty as "a Constitution for the Oceans" in the final meetings of the conference. Tommy T.B. Koh, *A Constitution for the Oceans*, Remarks at the Third United Nations Conference on the Law of the Sea (Dec. 6 & 11, 1982), available at http://www.un.org/depts/los/convention_agreements/texts/koh_english.pdf.

88. *UNCLOS Status Chart*, *supra* note 87.

89. Proclamation No. 5030: Exclusive Economic Zone of the United States of America, 97 Stat. 1557 (1983), available at <https://www.boem.gov/US-Mexico-Presidential-Proclamation-5030/>.

90. Proclamation No. 5928: Territorial Sea of the United States, 193 Stat. 2981 (1988), available at <http://www.presidency.ucsb.edu/ws/index.php?pid=35297>.

91. Proclamation No. 7219: Contiguous Zone of the United States, 113 Stat. 2138 (1999), available at <https://www.gpo.gov/fdsys/pkg/WCPD-1999-09-06/pdf/WCPD-1999-09-06-Pg1684.pdf>.

92. *UNCLOS Status Chart*, *supra* note 87.

80. U.S. CONST. art. II, §2, cl. 2.

81. Press Release, Environmental Defense Fund, President Clinton Signs Climate Treaty (Nov. 12, 1998), <https://www.edf.org/news/president-clinton-signs-climate-treaty>.

82. Christie Aschwanden, *A Lesson From Kyoto's Failure: Don't Let Congress Touch a Climate Deal*, FIFTYEIGHT, Dec. 4, 2015, <https://fivethirtyeight.com/features/a-lesson-from-kyotos-failure-dont-let-congress-touch-a-climate-deal/>.

83. U.S. Department of State, *Treaties Pending in the Senate*, <https://www.state.gov/s/l/treaty/pending/> (last updated Aug. 28, 2018).

84. *Id.* ¶ 12.

dent Harry Truman proclaimed the United States' assertion of control over its continental shelf⁹³—a post-World War II recognition of the importance of offshore oil and gas reserves. The United States' most prominent objection to ratifying LOSC was its treatment of the deep seabed (denominated "The Area") and its minerals as "the common heritage of mankind." However, deep seabed mining is just now getting underway, and even then, so far, it is taking place only on the deeper parts of continental shelves controlled by coastal nations (gold and copper deposits off the coast of Papua New Guinea⁹⁴ and iron sands off the coast of New Zealand⁹⁵). As a result, the United States' objection might be regarded as 40 years premature.

Even with respect to the seabed, however, the United States is beginning to behave like the rest of the world. Specifically, the United States is mapping its extended continental shelf in the Arctic Ocean in conformance with LOSC⁹⁶—even though our non-ratification of the treaty means that we cannot submit a claim to that extended shelf to the Commission on the Limits of the Continental Shelf.⁹⁷ Moreover, U.S. companies like Lockheed Martin prefer the legal safety of LOSC when pursuing deep seabed mining; indeed, Lockheed Martin formed a United Kingdom (U.K.) subsidiary, UK Seabed Resources, so that it could receive its mining licenses from the International Seabed Authority pursuant to the treaty.⁹⁸ Such industry preferences and the United States' interest in the Arctic might finally induce the Senate to ratify the treaty.

Maybe. The larger point here, however, is that the United States' relationship to LOSC has been more or less the same since President Reagan, despite the fact that he did not sign the treaty and President Clinton did. Part of the reason, no doubt, is that President Dwight Eisenhower signed, and the Senate under new-President John Kennedy ratified, the four 1958 United Nations conventions on the law of the sea,⁹⁹ which set forth many of the same kinds of obligations and rights as the 1982 LOSC. Another part, no doubt, is

that the new jurisdictional provisions in LOSC, and many other of its provisions, work to the United States' advantage. But an important part of the reason is that Senate procedures and politics—not presidential inclination—has been an effective roadblock to ratification,¹⁰⁰ underscoring the basic constitutional point that the United States' assent and strict adherence to international environmental law is only partially a matter of who the president is.

VI. Learning From Local Response to Environmental Disruption

This section was authored by Keith Hirokawa, Professor of Law, Albany Law School; and Jonathan Rosenbloom, Dwight D. Opperman Distinguished Professor of Law, Drake University Law School.

A brief perusal of the history of environmental law illustrates the ways law might be employed to suffer through a constant state of disruption. In the past, we have largely relied on state and federal environmental legislation and regulation to accomplish the task, in part because of a fear that local governments will "race to the bottom" and take a competitive advantage against their more regulation-prone neighbors.¹⁰¹ We would suggest that the reliance on state and federal regulation, as well as the lack of confidence in local governance, has served to undermine sincere dialogue on the potential of local government to govern well both within and across boundaries.

The present circumstance of climate and ecological disruption will provide an opportunity to revisit the issue of local environmental law. Specifically, climate change will require more engagement with local governments because of the local stakes involved. Given current and likely future disruptions from rising sea levels, heat waves, and storm events, local governments will be faced with coastline insecurity, vulnerable infrastructure and difficulties in meeting essential human needs, geological instability, uncertain ecological changes (such as invasive species), water scarcity, and population migration. Such changes will permeate social, economic, and environmental expectations in every community. Given the role that local governments play in responding to challenges to local quality of life and security, local governments will inevitably become players.

There are and will be instances where local governments manipulate social, economic, and environmental resources to protect their own. But there are and will be examples that illustrate the contrary. Some local governments forgo regulation of extraction and resource development, while

93. Proclamation No. 2667: Policy of the United States With Respect to the Natural Resources of the Subsoil and Sea Bed of the Continental Shelf, 10 Fed. Reg. 12305 (Sept. 28, 1945), available at https://www.gc.noaa.gov/documents/gcil_proc_2667.pdf.

94. Fatima Arkin, *Sea Mining Project Off Papua New Guinea Hits Choppy Waters*, ECO-BUSINESS, Feb. 19, 2018, <https://www.eco-business.com/news/sea-mining-project-off-papua-new-guinea-hits-choppy-waters/>.

95. Kiwis Against Seabed Mining, *What Is Seabed Mining?*, <http://kasm.org.nz/seabed-mining/what-is-seabed-mining/> (last visited Nov. 26, 2018).

96. Lauren Steenson, *Mapping the Extended Continental Shelf in the Arctic*, COAST GUARD COMPASS, Nov. 28, 2016, <http://coastguard.dodlive.mil/2016/11/mapping-the-extended-continental-shelf-in-the-arctic/>.

97. See Division for Ocean Affairs and the Law of the Sea, United Nations, *Commission on the Limits of the Continental Shelf (CLCS)*, http://www.un.org/Depts/los/clcs_new/clcs_home.htm (updated July 17, 2018).

98. Lockheed Martin, *UK Seabed Resources*, <https://www.lockheedmartin.com/en-gb/products/uk-seabed-resources.html> (last visited Nov. 26, 2018).

99. The four 1958 conventions are the Convention on the Territorial Sea and the Contiguous Zone, text and status available at <https://treaties.un.org/Pages/showDetails.aspx?objid=0800000280033c69>; the Convention on the High Sea, text and status available at <https://treaties.un.org/Pages/showDetails.aspx?objid=080000028003327e>; the Convention on Fishing and Conservation of the Living Resources of the High Seas, text and status available at <https://treaties.un.org/Pages/showDetails.aspx?objid=0800000280033df>; and the Convention on the Continental Shelf, text and status available at <https://treaties.un.org/Pages/showDetails.aspx?objid=08000002800338fb>.

100. For recent arguments against ratification, see Theodore R. Bromund et al., *7 Reasons U.S. Should Not Ratify UN Convention on the Law of the Sea*, HERITAGE FOUND., July 4, 2018, <https://www.heritage.org/global-politics/commentary/7-reasons-us-should-not-ratify-un-convention-the-law-the-sea>.

101. We also note that it is due, in part, to lack of resources. Local governments are tasked with critical functions such as safety (e.g., police/fire/hospitals), education, provision of potable water, and waste removal, but in many cases are limited in the funds they can raise to perform such functions.

others will adopt more comprehensive land use regulations that maintain ecosystem services and other quality-of-life determinants. But differences in local governance are neither surprising nor unwarranted—governments illustrate legitimacy through responsiveness to local needs, and local needs differ across boundaries. More importantly, norms and values develop in very local ways, and it would be a mistake to disregard value differences, even at minute levels, that occur across borders.

Local is not only a circumstance that is relevant to understanding particular governmental actions. Local also provides a framework for understanding common concerns such as shared resources, regional circumstances, and intergovernmental cooperation. And, in the context of disruption, local can play a significant role in at least the following four categories: responsiveness, baseline information generation, innovation research, and normalization.

A. *Local Is Responsive to Change*

Environmental disruption is coming and, in fact, is here. Law will have to develop new strategies to face the new challenges and immediacy will be a factor. Government strategies should be designed to launch on short notice. It is easier to experiment with new regulations and approaches at the local level: first, because the closeness of local government to governed communities demands it; and second, because the scale of local governance makes debate, passage, and implementation of new approaches easier.

Local governments are acutely responsive to social, economic, and environmental change for good reason. Regardless of how such disruptions are perceived on a regional, state, or federal level, they are felt locally. The invention of the elevator and automobile fundamentally altered the role and potential of urban areas to provide homes and economic opportunities. In turn, such disruptions helped shape attention to infrastructure and governmental service needs. More recently, local governments have expeditiously responded to water shortages by prohibiting water waste, restricting specific water uses, and requiring installation of efficient water fixtures and grey water use in new construction and building renovations. Similarly, local governments have controlled stormwater flows by implementing measures for permeable pavements, green roofs, and rainwater harvesting.¹⁰²

B. *Local as a Source of Baseline Information*

As a matter of course, local governments gather and assess information on local vulnerabilities to disruptions. Local governments keep a watchful eye on natural and built infrastructure assets, the availability of natural resources, housing stocks, access to food and energy, and population

dynamics. Local governments often require permit applicants to provide critical information on development elevations, habitat values, and slope stability. Likewise, local planning and development review processes have resulted in a wealth of information on groundwater budgets, canopy cover, and buildable lands.

Other local governments require energy benchmarking and audits for larger buildings and governmental operations.¹⁰³ The information is commonly used to inform a variety of local government decisions such as land use planning and permitting, budget decisions and infrastructure planning, event planning, intergovernmental cooperation, and even the exercise of eminent domain. The information helps to identify future risks and costs, the potential for public interest in particular problems, and the solutions that might be relevant.

Local governments are not better at gathering this information due to sophistication or funding. Local governments are better at it because of their access to a deep pool of relevant information and their lens through which the information is discerned. The important point here is to recognize the critical role of location to the way local governance happens. Based on geological, ecological, economic, and cultural circumstances, communities adapt to the demands of living in a particular place because communities must survive in their own place. This type of experienced information is tattooed with the values that particular resources have to their beneficiaries and users and reflected in local resource decisions.

C. *Local as a Laboratory for Innovative Responses*

Communities approach particular changes in their own ways—some dig in to wait out changes, some take more protectionist ideals and seek to maintain the status quo through zoning, where others employ more forward-thinking measures through long-range planning. It should not be surprising that different communities often understand changing circumstances in ways that appear to contradict. But it is also not surprising that a particular community's reaction to new challenges follows more or less the same basic premise: although local needs and circumstances will vary, human needs and quality of life are the common driver.

Accordingly, the third observation about the importance of local is variation in innovation. The development of technologies and approaches to construction, infrastructure, economic development priorities, education, and housing (and others) is designed to resolve the effects of disruption and secure a community's vision against the backdrop of change. Importantly, variation in local responses to disrup-

102. See, e.g., CHATHAM, MASS., PROTECTIVE BYLAWS §4(B) (2016) (floodplain development and permeable driveways); DENVER, COLO., CODE OF ORDINANCES §§10-300 to 10-308 (2017) (green roofs); San Diego, Cal., Rain Harvesting Rebate Program (cash incentives for rain barrel installation).

103. See, e.g., ATLANTA, GA., CODE OF ORDINANCES §8-2002 (2016) (requiring both energy benchmarking and auditing for certain public and private buildings); DENVER, COLO., CODE OF ORDINANCES §4-53 (2016) (commercial building benchmarking and reporting); SEATTLE, WASH., MUNICIPAL CODE §22.920.010 (2010) (requiring building benchmarks and reporting); AUSTIN, TEX., CODE OF ORDINANCES §6-7-31 (2011) (commercial facilities required to calculate annual energy budget).

tion generates significant information on what works and the local circumstances that facilitate stories of success.

Many local governments are experimenting with incentives to promote green building techniques and even requiring developments to implement the most sophisticated building materials. While the federal government pursues policies that support coal and concrete, local governments are pushing forward with promoting technologically advanced forms of building. Lancaster, California, requires that many new buildings meet net-zero standards or be outfitted with a solar energy system that can produce two watts of power for every square foot of the home.¹⁰⁴ Georgetown, Texas, offers multiple incentives, including net metering and rebates, for residents to add renewable energy sources to their properties.¹⁰⁵ Miami Beach, Florida, a city already struggling with climate change, is assessing building fees to combat the impacts of rising sea levels through innovative projects such as environmental restoration projects, monitoring, green infrastructure, and stormwater quality improvements.¹⁰⁶

D. Local as Normalization

Elevating location in an analysis of environmental governance does not suggest any particular value as a normative matter. There will be few response strategies that will be effective in every community, and a “good” strategy may be best guided by the notion that it is good if it would work here. In the meantime, preemption is a good check on local governance, and top-down approaches to land use regulation may offer meaningful constraints on the bad kind of intergovernmental and intercommunity competition.

Nevertheless, the pervasiveness of location suggests that we should not rush to preempt local initiative. In the meantime, although local should be recognized for uniqueness, the contingencies in the arena of local regulation can serve as a gauge for developing norms. Successful strategies can be borrowed and adapted to different communities, which in turn will generate additional confidence as response strategies across the spectrum of ecological, geological, and hydrological difference normalize in the common goals that drive locational adaptation.

VII. You Cannot Disrupt What Was Never Ordered—Land Use Policy in the United States

This section was authored by Blake Hudson, A.L. O’Quinn Chair in Environmental Studies and Professor of Law, University of Houston Law Center.

The theme of the 2018 ELC, “Environmental Law. Disrupted,” effectively captures the way in which federal environmental law has been seemingly turned on its head

under the current Administration. It truly feels like a disruption, as if nearly 50 years of environmental progress is not just being halted, but is at risk of being reversed, even on issues that in recent decades seemed settled—like having safe air to breathe and safe water to drink. Of course, we have seen this play out before, such as when President Reagan was first elected and began the rollback of federal environmental protections. But partisanship is much more acute today than it was even then,¹⁰⁷ and the disruption seems to have an air of permanence about it, or at least an air of long-term persistence.

In light of this disruption, many are calling for an increased reliance on the next line of defense, state governments. It is an understandable position, given that some states have demonstrated an interest in addressing environmental problems more broadly, as well as the political will and administrative capacity to do so. Yet for many more states, particularly in regions of the country like the Southeast (where I am from), an understanding of the state’s role in protecting citizens from environmental and associated economic harm, and development of the political will and institutional capacity to carry out such programs, feels quite remote. In these locations, it is arguably not much further developed than it was when the state of Ohio seemed content to let the Cuyahoga River burn in the 1960s.

But what about the areas of law where there never was a comprehensive, ordered legal approach already in place to be disrupted—the legal fronts where states have yet to comprehensively exercise their authority to protect the environment, and where the federal government has little to no regulatory safeguards in place? Such is the case with land development that impacts natural resources, and the dearth of policies in place to comprehensively and effectively deal with the scope of the problem. In this space, there really cannot be a disruption of the legal regime, because there never was a meaningful evolution or progression toward comprehensive environmental safeguards to begin with.

Control over the paving of landed natural capital with development in the United States remains an uber-decentralized mishmash of policy approaches (at least in places where there are any policies actually implemented). Land use regulation is the “quintessential state and local power,” as articulated by the Supreme Court.¹⁰⁸ Thus, the 50 states hold the keys to how land development proceeds, with little input from the federal government (except in the limited circumstances where an endangered species¹⁰⁹ or a wetland connected to navigable waters¹¹⁰ are present). Most states, in turn, often leave decisions over land use development to the 88,000 subnational governments that stretch across the United States—that is, unless the states do not like the

104. LANCASTER, CAL., ENERGY CODE §15.28.020(c) (2017).

105. GEORGETOWN, TEX., CODE OF ORDINANCES §13.04.083(D)(2) (2012).

106. MIAMI BEACH, FLA., CODE OF ORDINANCES §133-6(a) (2016).

107. Carroll Doherty, *Key Takeaways on Americans’ Growing Partisan Divide Over Political Values*, PEW RES. CENTER, Oct. 5, 2017, <http://www.pewresearch.org/fact-tank/2017/10/05/takeaways-on-americans-growing-partisan-divide-over-political-values/>.

108. *Rapanos v. United States*, 547 U.S. 715, 738, 36 ELR 20116 (2006).

109. ESA of 1973, 16 U.S.C. §§1531-1544.

110. 33 U.S.C. §1344(a).

way in which local governments are trying to control land development to prevent environmental harm, in which case they can preempt those efforts.¹¹¹

While the federal government refuses to enter the regulatory space, land development impacts many of the targets of federal environmental regulation.¹¹² Land development affects water quality (the CWA), air quality (mobile emissions under the CAA), and the primary driver of species decline, habitat destruction (the ESA). So the subject matter of federal environmental law could be addressed more effectively if state and local governments engaged in better land use planning.

Considering the lack of federal involvement, and an ad hoc, inconsistent approach to land use planning at the state and local levels (with southeastern states being exceptionally lax regarding land development controls),¹¹³ urban sprawl proceeds apace, and natural capital is being replaced at a profound rate. While some jurisdictions have engaged in innovative land use planning and development, and gains have been made on some fronts, until society begins to view development per se as a complex, “super-wicked” environmental problem, we will not maintain a sense of urgency along policy fronts to address the problem’s scope. We will keep addressing the symptoms of the land development problem (endangered species, poor water quality, and poor air quality) rather than finding a cure for the disease.

While explication of the minutiae is beyond my scope here, I am currently working on a project developing a typology of factors that contribute to the wickedness of the land development problem (stay tuned). These include the challenges of collective action unique to the land development sector; corporate design of that sector; legal institutional hurdles; economic drivers; intersecting federal policies; property rights; political economy; time/behavioral science/spatial and geographic factors; population/demographics; and an ever-changing natural environment in a time of climate change. Articulating and exploring these factors will be important, both to change the dialogue on land development as an environmental problem and to more adequately inform policy responses to address the problem.

In short, the current state of affairs at the national level is a dramatic disruption of environmental progress. But we cannot forget the areas where holistic environmental progress has never been achieved. In a world of growing populations and economic growth tied quite directly¹¹⁴ to the replacement of natural capital with human-built capi-

tal (Texas, a state of 25 million people in 2010 is projected to double to 50 million citizens by 2050¹¹⁵ due to rapid economic expansion), we can no longer take our country’s vast expanse of land for granted. We must do better to plan and control growth, the development of our land, and the replacement of our natural capital. If not, we will eventually find the loss of those environmental resources quite disruptive to human progress and well-being.

VIII. Environmental Justice and Environmental Sustainability: Beyond Environment and Beyond Law

This section was authored by Sarah Krakoff, Associate Dean for Faculty Affairs and Moses Lasky Professor of Law, University of Colorado Law School; and Shannon Roesler, Professor of Law, Oklahoma City University School of Law.

Since the dawn of the environmental justice movement, we have heard the stories of individuals and communities left unprotected by our environmental laws and policies. Their stories reveal the deep-seated structures of racism and inequality that determine what resources and which people environmental law will protect.

Despite risks to the cultural and natural resources of the Standing Rock Sioux Tribe, the federal government allowed the construction of the Dakota Access Pipeline.¹¹⁶ When officials in Flint, Michigan, a majority-minority city where 40% of the people live in poverty,¹¹⁷ purported to cut costs by switching the city’s water supply, they cut corners and failed to treat the water to prevent corrosion. Their decisions exposed the city’s residents to dangerous levels of lead in their drinking water.¹¹⁸ Recent hurricanes have again devastated the most vulnerable communities, and yet the president dismisses the 2,975 deaths from Hurricane Maria in Puerto Rico as fake news created by Democrats to make him “look as bad as possible.”¹¹⁹

But thousands of people did die. Thousands of people were exposed to lead in drinking water. And the promises made to the Standing Rock Sioux Tribe, long ago enshrined in treaties, were once again broken. How can the next generation of environmental laws do better? If the underlying problems include structural racism and inequality, the

111. See Tom Dart, *Denton, Texas, Banned Fracking Last Year—Then the Frackers Fought Back*, GUARDIAN, May 22, 2015, <https://www.theguardian.com/environment/2015/may/22/denton-texas-banned-fracking->; Andrew Follett, *Louisiana Supreme Court Smacks Down Fracking Ban*, DAILY CALLER, June 20, 2016, <https://dailycaller.com/2016/06/20/louisiana-supreme-court-smacks-down-fracking-ban/>.

112. Blake Hudson, *Relative Administrability, Conservatives, and Environmental Regulatory Reform*, 68 FLA. L. REV. 1661 (2016).

113. Blake Hudson, *The Natural Capital Crisis in Southern U.S. Cities*, 92 CHIKENT L. REV. 529 (2017).

114. J. Vernon Henderson et al., *Measuring Economic Growth From Outer Space*, 102 AM. ECON. REV. 992 (2012).

115. Alexa Ura, *Report: Texas Population to Double by 2050*, TEX. TRIBUNE, Mar. 5, 2015, <https://www.texastribune.org/2015/03/05/report-texas-population-double-2050/>.

116. See Rebecca Hersher, *Key Moments in the Dakota Access Pipeline Fight*, NPR, Feb. 22, 2017, <https://www.npr.org/sections/thetwo-way/2017/02/22/514988040/key-moments-in-the-dakota-access-pipeline-fight>.

117. U.S. Census Bureau, *QuickFacts, Flint City, Michigan*, <https://www.census.gov/quickfacts/fact/table/flintcitymichigan/PST045217> (last visited Nov. 26, 2018).

118. See Anna Clark, *“Nothing to Worry About. The Water Is Fine”: How Flint Poisoned Its People*, GUARDIAN, July 3, 2018, <https://www.theguardian.com/news/2018/jul/03/nothing-to-worry-about-the-water-is-fine-how-flint-michigan-poisoned-its-people>.

119. See Linda Qiu, *Trump’s False Claims Rejecting Puerto Rico’s Death Toll From Hurricane Maria*, N.Y. TIMES, Sept. 13, 2018, <https://www.nytimes.com/2018/09/13/us/politics/trump-fact-check-hurricane.html>.

answer may require radical change. To achieve environmental justice on a sustainable planet, the next generation of environmental law will have to change in two ways. It will have to go beyond the environment and beyond law.

That is a tall order. But if we are asking big questions, there is no point in being coy or timid. There are two huge problems facing the planet right now. One is that its stable operating systems are at risk of going awry. Climate change, species extinction rates, and other indicators lead scientists to worry that we are at risk of breaching the earth's safe boundaries for environmental stability.

The second is that inequality between rich and poor has increased dramatically over roughly the same period that we have put the planet's operating systems in jeopardy. To make matters even more complicated, wealth inequality is shot through with the structures of racism and colonialism. So, if we are thinking big, we might as well think beyond the parameters of our training and disciplines. We should think about what sorts of cultural, economic, and legal structures would result in a just, equitable, and sustainable world for humans and nonhumans. And then we should try to think and imagine a way from here to there.

Time is of the essence. We need new visions of an equitable, sustainable future now. Climate change (which is just one of the earth system boundaries at risk) could soon result in a virtually unrecognizable and volatile planet. In a recent article, Swedish scientist Will Steffen and co-authors outlined a scenario that leads the earth to a situation where positive feedback mechanisms push "the Earth System toward a planetary threshold that, if crossed, could prevent stabilization of the climate . . . and cause continued warming on a 'Hothouse Earth' pathway . . . even as human emissions are reduced."¹²⁰ That pathway is not inevitable, but if it is not averted through rapid and steep reductions in greenhouse gas emissions, "Hothouse Earth is likely to be uncontrollable and dangerous to many . . . and it poses severe risks for health, economies, political stability (*especially for the most climate vulnerable*), and ultimately, the habitability of the planet for humans."¹²¹

If the "Hothouse Earth" scenario comes to pass, it will occur on a planet marked by dramatic and racialized inequality. Economist Thomas Piketty has documented the rise in inequality since industrialization, attributing it to the fact that capital wealth has grown faster than incomes. The upshot is that the United States and other western democracies have very little economic mobility, and are more similar in this regard to monarchical or feudal societies than functioning democracies. In the United States, the long history of legal, political, and economic marginalization of African Americans, Native Americans, and other non-whites means that today's inequality is also marked by race.

Further, recent research has shown that natural hazards not only have disparate impacts on poor and minority communities, but that they too contribute to wealth

inequality: "Overall, . . . natural hazard damages are contributing to wealth inequality. Additionally . . . while inequality is occurring along other lines, the most notable inequity is along lines of race, education and homeownership."¹²² In other words, environmental harms not only have disparate economic and racial impacts, they also entrench racialized inequality.

In the current cultural and political moment, the structural causes of environmental degradation, rising inequality, and racism are converging in troubling ways. Following the election of President Obama, a study found that white Americans were less likely to view climate change as a serious problem, suggesting a link between racial resentment and climate change denial.¹²³ Moreover, under the Trump Administration, U.S. environmental policies have actively excluded the most vulnerable communities.

For example, shortly after President Trump assumed office, the head of EPA's Office of Environmental Justice resigned in response to the Administration's proposed cuts to environmental justice programs.¹²⁴ In addition, the Administration's new \$1-\$7/ton social cost of carbon completely ignores the costs of global warming outside the United States, an isolationist approach to a quintessentially global problem.¹²⁵ The Trump Administration's indifference to the risks of a warming planet places the nation's, and the world's, most vulnerable populations at greatest risk. It is hardly surprising that a journalist summarized the most recent international report on climate change in the following way: "Either way, the outlook is dire, especially for the poor."¹²⁶

So, what would laws look like that could take us off of the pathway to a deeply unequal "Hothouse Earth" and toward a just, equitable, and sustainable planet? They would look like anti-poverty laws, wealth redistribution laws, public infrastructure laws, and health care laws. They would also look like much stronger and more directive environmental laws with interlinked goals of just and equitable decarbonization. And environmental laws would engage at all scales of governance, making local issues of educational segregation and housing inequality national priorities. In short, they would be laws that simultaneously ensure a just, equal, and free society, and that protect the ecological foundations of the planet.

122. Junia Howell & James R. Elliott, *Damages Done: The Longitudinal Impacts of Natural Hazards on Wealth Inequality in the United States*, SOC. PROBS., Aug. 14, 2018, <https://academic.oup.com/socpro/advance-article/doi/10.1093/socpro/spy016/5074453>.

123. Salil D. Benegal, *The Spillover of Race and Racial Attitudes Into Public Opinion About Climate Change*, 27 ENVTL. POL. 733 (2018), available at <https://www.tandfonline.com/doi/full/10.1080/09644016.2018.1457287>.

124. See Timothy Cama, *EPA's Environmental Justice Head Resigns*, HILL, Mar. 9, 2017, <https://thehill.com/policy/energy-environment/323209-epas-environmental-justice-head-resigns>.

125. See Brad Plumer, *Trump Put a Low Cost on Carbon Emissions. Here's Why It Matters*, N.Y. TIMES, Aug. 23, 2018, <https://www.nytimes.com/2018/08/23/climate/social-cost-carbon.html>.

126. John H. Cushman Jr., *1.5 Degrees Warming and the Search for Climate Justice for the Poor*, INSIDECLIMATE NEWS, Jan. 12, 2018, <https://insideclimate-news.org/news/12012018/ipcc-climate-change-1.5-degrees-poverty-environmental-justice-draft-report>.

120. Steffen et al., *supra* note 3.

121. *Id.* at 8256 (emphasis added).

To achieve such laws (and the economic system in which they would participate) will likely take the kind of massive and diverse activism that resulted in the civil rights and environmental law making movements of the 1960s and early 1970s. It will take a movement that seeks more than legal change. Yet there is plenty for lawyers to do. Without lawyers to do the work on the front end, and to be standing by during and after the chaos, the chances of getting on the right path are greatly diminished. In short, to get on the path to a just, equitable, and sustainable earth, it will take much more than legal change, but it will require no less than the full attention of lawyers committed to defeating racism, reversing inequality, and saving the planet.

IX. Malignant Normality

This section was authored by Katrina Fischer Kuh, Haub Distinguished Professor of Environmental Law, Elisabeth Haub School of Law at Pace University.

In the spring of 2018, I joined professionals from a number of areas, including law, public health, science, and psychology, at the Witnessing Professionals and Climate Change Conference at Princeton University, to contemplate the impact that the global climate crisis has had on our understanding of professional responsibility. In the rich discussion that ensued, Prof. Robert Jay Lifton, lecturer in psychiatry at Columbia University and distinguished professor emeritus of psychiatry and psychology at the City University of New York, used a phrase—“malignant normality”—that was referenced throughout the conversation and has resonated with me as I have continued to consider the intersection between climate change and the professional responsibilities of attorneys.

In many important respects, norms of legal professional conduct—as expressed in the *Association of American Law Schools (AALS) Statement of Good Practices by Law Professors in the Discharge of Their Ethical and Professional Responsibilities* and the *Model Rules of Professional Conduct*, and exemplified by the actions of many attorneys and professional associations—position the legal profession to provide support and leadership in response to climate change. The *AALS Statement of Good Practices* provides that law professors have an “enhanced obligation to pursue individual and social justice,” and that “engaging in law reform activities or advocating for improvements in law and the legal system is a valued role of legal academics.”¹²⁷ The *Model Rules* encourage attorneys to participate “in activities for improving the law,”¹²⁸ and allow attorneys when advising clients to “refer not only to law but to other considerations such as moral, economic, social and political factors that may be relevant to the client’s situation.”¹²⁹ And the Environmental Law Institute recently cosponsored the Second National Conference of Lawyers Committed to Address-

ing the Climate Emergency, which involved participants from across the professional spectrum, including private practice, academia, and public interest.

In other ways, however, legal professional norms may frustrate an efficacious response by the profession to climate change. For example, little attention has been paid to the role attorneys may have played in the energy industry effort to mislead the public about climate science and whether, if at all, the *Model Rules* speak to that type of conduct. Naomi Oreskes and Geoffrey Supran, *Inside-Climate News*, and the Union of Concerned Scientists have extensively documented how some energy industry actors orchestrated a campaign to market lies about climate science to the public. While the role of attorneys in the climate disinformation campaign is not (yet) clear, attorneys were deeply involved in the similar campaign by tobacco companies to lie to the public about the health effects of smoking.¹³⁰ Indeed, climate disinformation is but one in a series of revelations about corporate public disinformation efforts that now perhaps includes the safety of opioids as well.

Yet, while many have recognized that attorneys often advise clients regarding public relations, the *Model Rules* provide little clear guidance about the norms that should govern attorney conduct in this capacity:

- Model Rule 3.3 (Advocate, Candor Toward the Tribunal) prohibits a lawyer from knowingly making a false statement of fact or law or offering evidence that the lawyer knows to be false, but is limited to representations to a tribunal.¹³¹
- Model Rule 3.6 (Advocate, Trial Publicity) prohibits “[a] lawyer who is participating or has participated in the investigation or litigation of a matter” from making an “extrajudicial statement that the lawyer knows or reasonably should know will be disseminated by means of public communication and will have a substantial likelihood of materially prejudicing an adjudicative proceeding in the matter,” but is limited to lawyers acting directly as spokespeople in the context of an adjudicatory proceeding.¹³²
- Model Rule 4.1 (Transactions With Persons Other Than Clients—Truthfulness in Statements to Others) prohibits lawyers from knowingly making a false statement of material fact or law to a third person and from failing to disclose a material fact to a third person when disclosure is necessary to avoid assisting a criminal or fraudulent act by a client.¹³³ But various requirements embedded in the rule raise uncertainty as to whether and how it could apply to counseling misleading public communications. It may be diffi-

127. AALS, HANDBOOK: STATEMENT OF GOOD PRACTICES 119 (2018).

128. MODEL RULES OF PROF’L CONDUCT R. 6.1 (2016).

129. *Id.* R. 2.1.

130. Bruce A. Green, *Thoughts About Corporate Lawyers After Reading the Cigarette Papers: Has the “Wise Counselor” Given Way to the “Hired Gun”?*, 51 DEPAUL L. REV. 407, 414-18 (2001).

131. MODEL RULES OF PROF’L CONDUCT R. 3.3 (2016).

132. *Id.* R. 3.6.

133. *Id.* R. 4.1.

cult to show that the underlying corporate conduct constitutes fraud, as this is indexed to the substantive or procedural law of the applicable jurisdiction and information protected by privilege need not be disclosed. Additionally, it is not clear what level of knowledge satisfies the requirement for “knowingly,” nor is it clear what would be understood to constitute a material fact in that context.

- Model Rule 8.4 (Maintaining the Integrity of the Profession, Misconduct) provides that it is professional misconduct for a lawyer to engage in conduct involving dishonesty, fraud, deceit, or misrepresentation, or to counsel a client to engage in activity that would violate the Rules of Professional Conduct.¹³⁴ This would seem, on its face, to be potentially applicable to attorney involvement in corporate disinformation campaigns. However, Model Rule 8.4 has not been interpreted or applied in a context similar to that of counseling corporate public disinformation. The *Restatement (Third) of the Law Governing Lawyers* cautions courts to “avoid[] overbroad readings”¹³⁵ of the model rule, and a review of cases and disciplinary proceedings reveals that the rule has typically been applied to conduct of a very different nature, such as when an attorney helps a client structure a fraudulent transfer to avoid a known creditor or backdates documents.

Can attorneys ethically assist their clients in misleading the public through corporate disinformation campaigns designed to distort public opinion, like the climate disinformation campaign? The answer to that question is frustratingly opaque—there is no clear guidance under the *Model Rules*. In two companion articles, professional responsibility scholar Michele DeStefano Beardslee reported on the results of a study documenting the increasing role of attorneys in managing corporate public relations, and analyzed the *Model Rules* for guidance regarding attorneys functioning in that role.¹³⁶ She concluded that “the current ethics rules, adversarial system, and economic incentives almost predestine that attorneys will aid their clients in misleading the public about corporate legal controversies,” observing that “[f]or statements that misrepresent or stretch the truth, the current interpretations of the *Model Rules* do little to constrain” attorney advocacy in the court of public opinion.¹³⁷

The lack of clear guidance about the ethical obligations of attorneys advising clients in the public relations context may thus be an aspect of our existing professional, normative structure that has contributed to inertia on cli-

mate issues. And there are other climate-relevant aspects of legal professional norms that warrant examination. Chief among these is the continued greenhouse gas-intensive travel to professional conferences that is, perhaps, profligate in present circumstances. Critical assessment of these and other legal professional norms is warranted to ensure that embedded professional norms, practices, and structures do not inadvertently contribute to a malignant normality that deepens the climate crisis.

X. Disruption as Opportunity

This section was authored by Jessica Owley, Professor, University at Buffalo School of Law.

The world has always been full of disturbances, alterations, and disruptions. This has been particularly true when examining the ecological conditions of the earth. Our planet has undergone many changes, even some drastic ones. Yet the current rate of environmental disruption is unquestionable and unprecedented. Humans are a particularly destructive species. We convert species habitat. We pollute rivers. We overhunt. Our current historical environmental atrocities, however, seem trivial in the context of climate change. We are changing our atmosphere, our ocean currents, and our ecosystems. Particularly tricky is the unpredictability of climate change impacts and intensities.

A. Legal Disruption

Complicating the environmental disruption is an increased disruption of the American legal system. In the 1970s, the federal government began acknowledging environmental harms in our country and created legal strategies to combat them. The goal of the CAA (1970) is to prevent and control air pollution. The CWA (1972) seeks to eliminate the discharge of pollutants into the nation’s waters. The ESA (1973) recognizes the negative impacts of humans on the environment and seeks a “means whereby the ecosystems upon which endangered species . . . depends may be conserved.”¹³⁸ And with the clearest acknowledgement of human impacts on the environment, the National Environmental Policy Act (NEPA) (1970) recognizes “the profound impact of man’s activities”¹³⁹ on the natural world, and sets a national policy to “prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of [hu]man[s].”¹⁴⁰

While the effectiveness of these laws and the strategies Congress adopted is open for debate, the laws represent an awareness of environmental harm and a need to combat it. All of these statutes and others are now under attack from the Trump Administration and the Republican Congress.¹⁴¹ The Administration is seeking repeal and revi-

134. *Id.* R. 8.4.

135. RESTATEMENT (THIRD) OF THE LAW GOVERNING LAWYERS §5 cmt. c (2000).

136. Michele DeStefano Beardslee, *Advocacy in the Court of Public Opinion, Installment One: Broadening the Rule of Corporate Attorneys*, 22 GEO. J. LEGAL ETHICS 1259 (2009); Michele DeStefano Beardslee, *Advocacy in the Court of Public Opinion, Installment Two: How Far Should Corporate Attorneys Go?*, 23 GEO. J. LEGAL ETHICS 1119 (2010) [hereinafter Beardslee, *Installment Two*].

137. Beardslee, *Installment Two*, *supra* note 136, at 1127, 1145.

138. 16 U.S.C. §1531(b).

139. 42 U.S.C. §4331(a), ELR STAT. NEPA §2-209.

140. *Id.* §4321.

141. See Michael Greshko et al., *A Running List of How President Trump Is Changing Environmental Policy*, NAT’L GEOGRAPHIC, originally published

sion of the statutes along with changes to regulations and agency policies. Beyond the laws on the books, the Administration is also disrupting federal environmental law by dismantling the agencies that carry out those laws.¹⁴² The number of employees is shrinking along with departmental budgets.¹⁴³ Science posts are being removed or left unfilled and scientific reports and language specifically prohibited or hidden.¹⁴⁴

While the assault on the panoply of existing federal environmental programs is disheartening, federal climate change policy is truly depressing. In 1992, world leaders (along with many others) met in Brazil and acknowledged the intense environmental, economic, and social problems caused by global climate change.¹⁴⁵ Agreeing that the cause was “anthropogenic,” President George H.W. Bush signed the agreement and applauded the countries of the world in taking quick action to combat the serious problem of climate change.¹⁴⁶

Despite this statement (and the U.S. role in shaping both the initial agreement and subsequent accords), the federal government has never been a true leader in the fight against climate change. However, the Trump Administration’s actions in this realm are so radical as to again merit the label disruptive. Shortly after taking office, President Trump announced withdrawal of the United States from the Paris Agreement.¹⁴⁷ Even more insulting, the only significant U.S. delegation at the last Conference of Parties to that 1992 treaty preached increased use of fossil fuels.¹⁴⁸ As

with the disruption to our environment, the disruption to our environmental laws is unprecedented.

B. Disruption as an Opportunity

The real conundrum for environmental activists and humans who care about the world is determining what to do in the face of this disruption. The paragraphs above paint a bleak picture and suggest that disruption is doing significant harm. A challenge then is whether we can turn that attitude on its head and make these disruptions opportunities.

At our 2018 ELC meeting, Vanessa Casado Pérez noted that crisis, hitting rock bottom, is what really spurs human action on environmental issues. If things are really falling apart at the federal government, maybe this disruption of environmental law will trigger new energy and action from other sectors. Disruptions in innovation are changes to technologies that can help sectors (and sometimes even societies) leap ahead to a new level. Creative ideas lead to new solutions.

One sphere where this environmental and legal disruption is inspiring action is in the private sector. While the business sector can be a force for positive change, there is also a strength in individuals acting on their own or joining forces with the power of nongovernmental organizations. In this light, a turn to the private seems both logical and sensible. Citizens seek to fill in the gaps left by a withdrawn federal government. It is unclear whether they can work as effectively toward reducing the harms of ecological disruption, but in a time of legal disruption, their efforts gain prominence. Three examples highlight this trend:

- *Citizen science and information protection.* As government agencies began scrubbing their websites of environmental information, particularly discussions of climate change, others began archiving the information and making it available. Private organizations like the Environmental Data and Governance Initiative formed shortly after information began disappearing from public websites.¹⁴⁹ Groups that had formed earlier for other reasons (like associations of librarians)¹⁵⁰ also took up the cause of protecting and providing information when they saw the need arise. Additionally, while EPA may be employing fewer scientists, people across the planet are stepping up and collecting data to aid in scientific research and environmental monitoring. The rise of the citizen scientist is an innovation that can improve environmental information and outcomes if deployed correctly.¹⁵¹

Mar. 31, 2017, but continually updated, <https://news.nationalgeographic.com/2017/03/how-trump-is-changing-science-environment/>; Nadja Popovich et al., 76 *Environmental Rules on the Way Out Under Trump*, N.Y. TIMES, originally published Oct. 5, 2017, but periodically updated, <https://www.nytimes.com/interactive/2017/10/05/climate/trump-environment-rules-reversed.html>.

142. See, e.g., Brady Dennis et al., *With a Shrinking EPA, Trump Delivers on His Promise to Cut Government*, WASH. POST, Sept. 8, 2018, https://wapo.st/2CAA1vB?tid=ss_tw&utm_term=.be924cb30f7b.

143. See, e.g., Paul Bedard, *Success: EPA Set to Reduce Staff 50% in Trump's First Term*, WASH. EXAMINER, Jan. 9, 2018, <https://www.washingtonexaminer.com/success-epa-set-to-reduce-staff-50-in-trumps-first-term>; Jenny Rowland, *National Parks Are the Real Losers in Trump's Budget and Infrastructure Proposals*, THINKPROGRESS, Feb. 13, 2018 (describing cuts to staff and funding for the National Park Service), <https://thinkprogress.org/national-parks-trump-infrastructure-budget-f0530e5fa7c41>.

144. Coral Davenport, *How Much Has “Climate Change” Been Scrubbed From Federal Websites? A Lot.*, N.Y. TIMES, Jan. 10, 2018, <https://www.nytimes.com/2018/01/10/climate/climate-change-trump.html>; Jeff Tollefson, News Feature, *Science Under Siege: Behind the Scenes at Trump's Troubled Environment Agency*, 559 NATURE 316 (2018); Megan Julia & Rebecca Leber, *2017 Was a Big Year for Scrubbing Science From Government Websites. Here's the List.*, MOTHER JONES, Dec. 29, 2017, <https://www.motherjones.com/environment/2017/12/2017-was-a-big-year-for-scrubbing-science-from-government-websites-heres-the-list/>.

145. United Nations, *Earth Summit*, <http://www.un.org/geninfo/bp/enviro.html> (last revised May 23, 1997).

146. United Nations Framework Convention on Climate Change, *opened for signature* June 4, 1992, art. I, ¶ 5, S. TREATY DOC. NO. 102-38, 1771 U.N.T.S. 107, available at <https://unfccc.int/resource/docs/convkp/conveng.pdf>; President George Bush, The President's News Conference in Rio de Janeiro (June 13, 1992), <https://www.presidency.ucsb.edu/node/266798>.

147. Timmons Roberts, *One Year Since Trump's Withdrawal From the Paris Climate Agreement*, BROOKINGS, June 1, 2018, <https://www.brookings.edu/blog/planetpolicy/2018/06/01/one-year-since-trumps-withdrawal-from-the-paris-climate-agreement/>.

148. Irene Baños Ruiz, *COP23: U.S. Promotes Coal at Bonn Climate Conference*, DW, Nov. 13, 2017, <https://www.dw.com/en/cop23-us-promotes-coal-at-bonn-climate-conference/a-41368248>.

coal-at-bonn-climate-conference/a-41368248.

149. Environmental Data and Governance Initiative, *About*, <https://envirodata.gov.org/about/> (last visited Nov. 26, 2018).

150. See Jeff McMahon, *Where to Find Those EPA Web Pages Scrubbed by the Trump Administration*, FORBES, May 2, 2017, <https://www.forbes.com/sites/jeffmcMahon/2017/05/02/where-to-find-epa-web-pages-scrubbed-by-the-trump-administration/#58c691d3bba3>.

151. See *Special Issue: The Role of Citizen Science in Biological Conservation*, 208 BIOLOGICAL CONSERVATION 1-188 (2017).

- *Increasing support of environmental nongovernmental organizations and land trusts.* After the election of President Trump, donations to environmental advocacy organizations rose. Public attention to environmental issues can be seen in events like the March for Science and the Peoples Climate Movement. Gallup's most recent polls show concern for the environment growing in the United States, even as fewer people identify themselves as environmentalists.¹⁵²

Land trusts are an interesting part of this trend. Like other environmental organizations, they also saw their membership numbers and dollars increase post-Trump. Their focus differs from traditional environmental advocacy organizations as they seek to meet their conservation goals through protection of individual parcels and working with property tools. By purchasing land and rights in land, they seek to prevent development and conversion of land to uses that diminish ecosystem services and amenities. Working with private landowners, they often bring new people into the conservation movement. Through working with property rights, they create restrictions that are more durable than federal regulatory mechanisms.

- *Citizen suits.* Finally, despite a hollowing-out of our environmental laws, activists are drawing upon the citizen suit provisions contained in many of our key environmental statutes. While there have been some proposals that would impact some of the fee-shifting provisions of citizen suits, neither Congress nor the executive branch has suggested repealing citizen suit provisions or revising the Administrative Procedure Act, which often provides the hook for environmental litigation. Law firms are preparing for an increase in environmental citizen suits and the environmental activists seem happy to comply. Thus, we can still look to our 1970s law for some solace, even though we must acknowledge that the standing hurdles for environmental citizen suits are nontrivial.

These examples illustrate how energy and innovation by private actors can be part of the story of response to the current disruption of environmental law. Taken together with other examples and proposals in these essays, they can provide us with a way forward, if not quite a way out.

XI. Designing Law to Prevent Runaway Climate Change

This section was authored by Melissa Powers, Jeffrey Bain Faculty Scholar and Professor of Law, and Director, Green Energy Institute, Lewis & Clark Law School.

152. Gallup, *Environment*, <https://news.gallup.com/poll/1615/environment.aspx> (last visited Nov. 26, 2018); Frank Newport, *New Series: Where Americans Stand on the Environment, Energy*, GALLUP BLOG, Mar. 22, 2018, <https://news.gallup.com/opinion/gallup/231386/new-series-americans-stand-environment-energy.aspx>.

“Every system is perfectly designed to get the results it gets.”¹⁵³ If that is so, our climate and energy laws have been perfectly designed to fall short. They will not avoid the catastrophic consequences of climate change or enable a swift transition to a zero-carbon energy system,¹⁵⁴ because they have not been designed to achieve those outcomes. Instead, climate and energy laws in the United States, including those promoted by the most progressive jurisdictions, are designed to gradually reduce some emissions and eventually phase out fossil fuels from some sectors,¹⁵⁵ but they are not designed to achieve the drastic systemic changes in our energy sectors and human behavior that are necessary to quickly and permanently reduce greenhouse gases. Even laws that may appear to have ambitious final targets—such as an 80% reduction in greenhouse gas emissions or 100% renewable power by 2050—are designed with loopholes and exemptions that make it unlikely that the targets will be met.¹⁵⁶

For the United States and the world to have a chance of preventing runaway climate change, we need to change our approach to law making. Rather than focus on incremental changes that we hope will meet future targets, we must create outcome-oriented climate and energy laws that ensure compliance.¹⁵⁷ Otherwise, our slim chance to prevent runaway climate change will be lost.

U.S. environmental law is entering its fifth decade, and while the existing legal system has produced significant improvements in air and water quality, it is not up to the task of addressing climate change.¹⁵⁸ This is because U.S. environmental law is not end-goal-oriented, and the few laws that may seem to establish ambitious goals are not designed to meet them. Consider the CWA, which establishes the goal of restoring and maintaining “the chemical, physical, and biological integrity of the Nation’s waters,” so that every U.S. water body is fishable and swimmable.¹⁵⁹ However ambitious that goal may seem, the permitting systems under the CWA are designed and/or applied to allow continued degradation of water bodies, including

153. This observation is attributed to Dr. Paul B. Batalden. Susan Carr, *A Quotation With a Life of Its Own*, PATIENT SAFETY & QUALITY HEALTHCARE, July 1, 2008, <https://www.psqh.com/analysis/editor-s-notebook-a-quotation-with-a-life-of-its-own/>.

154. IPCC, *supra* note 47.

155. *Few Countries Are Pricing Carbon High Enough to Meet Climate Targets*, OECD, Sept. 18, 2018, <https://www.oecd.org/ctp/tax-policy/few-countries-are-pricing-carbon-high-enough-to-meet-climate-targets.htm>; ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT, EFFECTIVE CARBON RATES 2018: PRICING CARBON EMISSIONS THROUGH TAXES AND EMISSIONS TRADING (2018).

156. *See Carbon Tax or Cap-and-Trade?*, DAVID SUZUKI FOUND., Oct. 5, 2017 (noting the uncertain emission reductions under carbon taxes and the opportunity for loopholes to be engineered into the complex regulations of cap-and-trade programs as well as carbon taxes), <https://david Suzuki.org/what-you-can-do/carbon-tax-cap-trade>.

157. Accord Isabella Lövin, *To Lead on Climate, Countries Must Commit to Zero Emissions*, GUARDIAN, Apr. 17, 2018, <https://www.theguardian.com/environment/2018/apr/17/to-lead-on-climate-countries-must-commit-to-zero-emissions>.

158. Daniel C. Esty, *Red Lights to Green Lights: From 20th Century Environmental Regulation to 21st Century Sustainability*, 47 ENVTL. L. 1, 6-23 (2017) (discussing the history, achievements, and shortcomings of current U.S. environmental law).

159. Federal Water Pollution Control Act, 33 U.S.C. §§1251-1387.

those that are neither swimmable nor fishable due to historical and ongoing pollution and habitat destruction.

The CAA's goal of "protect[ing] and enhanc[ing] the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population,"¹⁶⁰ is similarly too vague to be considered outcome-oriented. In addition, implementation of the CAA focuses on balancing the economic interests of polluters with the public's interest in pollution reduction.¹⁶¹ At best, this balance will produce deep emissions reductions where cost-benefit analyses support them, but the balance is subject to distortion—as the Trump Administration's ongoing efforts to dismantle Obama-era environmental regulations reveal.

Even the Acid Rain Program under the CAA, which sets a final aggregate cap on sulfur dioxide emissions, uses a final target that was set based on politics, not environmental needs.¹⁶² U.S. environmental law seeks to slow the pace of degradation or to gradually accelerate the rate of improvement. While it is important that these laws are applied to greenhouse gases until we have better laws in place, it is also essential to recognize that existing environmental law will not, in and of itself, do the job of preventing runaway climate change.

Nor will state and local efforts, as currently designed, do the job. In response to the Trump Administration's announcement that it will withdraw from the Paris Agreement, and in response to the Trump Administration's assault on dozens of U.S. environmental rules,¹⁶³ states and local governments have declared their intent to take a leading role in mitigating climate change.¹⁶⁴ Their actions, while both commendable and necessary, are generally not designed to achieve decarbonization as an end goal.

Leading states like California and New York have enacted scores of laws to reduce greenhouse gas emissions,¹⁶⁵ but neither state has committed to energy decarbonization. California recently adopted a target of obtaining 100% zero-carbon electricity by 2045,¹⁶⁶ but the state does not

have a goal or a strategy for eliminating fossil fuels from its transportation or heating sectors. Several local governments, happily, have made commitments to decarbonize all aspects of their energy systems.¹⁶⁷ But, thus far, they do not have strategies to meet their commitments. In short, we lack both goals and designs for effective decarbonization.

We must change this approach. The United States and the rest of the world must quickly establish and achieve end goals for climate mitigation. Climate scientists have already told us what these end goals must be: for the world to have a chance of keeping temperature increases to tolerable levels, we must decarbonize our energy systems and, ultimately, achieve net-negative emissions targets through carbon sequestration.¹⁶⁸ Global greenhouse gas emissions must stop increasing, immediately, and they must then rapidly drop, so that, by 2050, developed countries emit no greenhouse gases from fossil fuels.

U.S. lawmakers at the local, state, and federal (after the Trump Administration is out of office) levels must commit to complete energy decarbonization by 2050.¹⁶⁹ They then must design their decarbonization strategies to ensure they meet this ambitious target. Much like we expect architects to design buildings that will perform as expected, we need to expect our lawmakers and regulatory agencies to create decarbonization strategies that will achieve the goals. Rather than apply existing laws with the hope that they will eventually reduce emissions over time, we need to create legal systems that ensure success. If "every system is perfectly designed to get the results it gets," it is past time for the United States to adopt a design approach to decarbonization. We cannot afford to get it wrong.

XII. Preparing Environmental Law for the Climate Dystopia

This section was authored by J.B. Ruhl, David Daniels Allen Distinguished Chair of Law, Director, Program on Law and Innovation, and Co-Director, Energy, Environment, and Land Use Program, Vanderbilt Law School.

The probability of holding the climb in atmospheric temperature to 2°C above pre-industrial levels, the central goal of the Paris Agreement,¹⁷⁰ is rapidly approaching zero.¹⁷¹ Barring a global political miracle, technological breakthrough, or economic collapse, we will surpass 2°C

160. Clean Air Act, 42 U.S.C. §§7401-7671q.

161. *See, e.g., Michigan v. Environmental Prot. Agency*, 135 S. Ct. 2699, 2707 (2015) (holding that EPA must consider costs borne by power plants when deciding whether to regulate power plants under the CAA).

162. RICHARD SCHMALENSSEE & ROBERT N. STAVINS, MASSACHUSETTS INSTITUTE OF TECHNOLOGY CENTER FOR ENERGY AND ENVIRONMENTAL POLICY RESEARCH, WORKING PAPER NO. 2012-012, THE SO₂ ALLOWANCE TRADING SYSTEM: THE IRONIC HISTORY OF A GRAND POLICY EXPERIMENT (2012), available at <http://ceep.mit.edu/files/papers/2012-012.pdf>.

163. Remarks Announcing United States Withdrawal From the United Nations Framework Convention on Climate Change Paris Agreement, 2017 DAILY COMP. PRES. DOC. 373 (June 1, 2017); Harvard Environmental Law Program, *Regulatory Rollback Tracker*, <http://environment.law.harvard.edu/policy-initiative/regulatory-rollback-tracker/> (last visited Nov. 26, 2018).

164. Sarah Holder, *One Year After Trump Left the Paris Agreement, Who's Still In?*, CITYLAB, June 1, 2018, <https://www.citylab.com/environment/2018/06/one-year-after-trump-left-the-paris-agreement-whos-still-in/561674/>.

165. *See, e.g., California Global Warming Solutions Act of 2006*, 2006 Cal. Stat. ch. 488; Act of Sept. 16, 2009, 2009 N.Y. Laws ch. 433 (establishing a state energy planning board to address, in part, greenhouse gas emissions).

166. 100% Clean Energy Act of 2018, S.B. 100, ch. 312, 2017/2018 Cong. (Cal. 2018); David Roberts, *California Just Adopted Its Boldest Energy Target Yet: 100% Clean Electricity*, Vox, Sept. 10, 2018, <https://www.vox.com/energy-and-environment/2018/8/31/17799094/california-100-percent-clean-energy-target-brown-de-leon>.

167. Sierra Club, *100% Commitments in Cities, Counties & States*, <https://www.sierraclub.org/ready-for-100/commitments> (last visited Nov. 26, 2018).

168. IPCC, GLOBAL WARMING OF 1.5°C: HEADLINE STATEMENTS (2018), https://report.ipcc.ch/sr15/pdf/sr15_headline_statements.pdf.

169. *See* Nancy Bazilchuk, *It's Important to Have a Goal: UN Climate Report View From the Nordics*, SCIENCE NORDIC, Oct. 15, 2018 (discussing the importance of ambitious targets), <http://sciencenordic.com/its-important-have-goal-un-climate-report-view-nordics>.

170. *See* Yun Gao et al., *The 2°C Global Temperature Target and the Evolution of the Long-Term Goal of Addressing Climate Change—From the United Nations Framework Convention on Climate Change to the Paris Agreement*, 3 ENGINEERING 272, 272 (2017).

171. Brad Plumer & Nadja Popovich, *Here's How Far the World Is From Meeting Its Climate Goals*, N.Y. TIMES, Nov. 6, 2017, <https://www.nytimes.com/interactive/2017/11/06/climate/world-emissions-goals-far-off-course.html>.

and enter an era of climate dystopia.¹⁷² How long that lasts before, if ever, we turn the corner is anyone's guess. Among the many casualties will be environmental law as we know it.

I paint a bleak picture, but it is one our nation's institutions of environmental law must face. Vast expanses of human populations will demand their well-being be protected from storms, droughts, pests, diseases, and other intense harms that extreme climate change will bring their way. The built environment will be reinforced or moved. Agricultural lands will be retooled or relocated. Halting the spread of crop pests will be a priority. Malaria, dengue fever, and other diseases will be controlled at all costs. Water will be moved to where it desperately is needed. People living where relief is simply unattainable will be relocated or leave of their own accord.

Equitable distribution of these and other protective measures will be demanded. And if environmental programs such as NEPA, the ESA, §404 of the CWA, the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and their many kin stand in the way of these adaptive responses, they will be mowed down. To be blunt about it: environmental law must prepare for the climate dystopia or be pushed aside.

The prospect of a climate dystopia means environmental law must put its money where its mouth is. For more than a decade, advocates for swift and robust controls on greenhouse gas emissions argued—rightly so—that failure to implement such controls would lead to a drastic global scenario of massive disruption to social-ecological systems. With failure increasingly likely, it would be untenable to suggest that the scenario is less dire than claimed or that adaptation measures of unprecedented scale and magnitude will not be necessary. Rather, climate change “mitigationists” must now work alongside “adaptationists,” and environmental law will need to conform to both agendas.

To be clear, I am not for a moment suggesting that environmental law back off efforts to control greenhouse gas emissions—even as we pass 2°C, we must continue work to turn it around (although a separate issue is whether hard-line environmentalism's opposition to new gas pipelines and electric transmission lines is actually impeding mitigation¹⁷³). Rather, it is climate change adaptation, not mitigation, that will push back on environmental law as we know it. Yet, as much as environmental law must pursue “deep decarbonization,” it also must facilitate “deep adaptation.”

This will be a new kind of challenge for environmental law. For the most part, the controversies enveloping environmental law until now have mostly been about an “environment versus economy” rhetoric.¹⁷⁴ Environmental law

has long been cast by critics as the enemy of jobs¹⁷⁵ and the enemy of property rights,¹⁷⁶ but rarely has it been condemned, even by its most ardent opponents, as the enemy of public health and safety (a recent example, though, is President Trump's preposterous claim that water conservation initiatives had prevented firefighters from accessing water to combat California's raging wildfires¹⁷⁷). That will change in the era of climate change adaptation, if environmental law does not itself adapt.

Before considering what can be done to prepare environmental law for the climate dystopia, let us consider and dispense with the option of staying the course, fighting the fight, and not giving an inch. This strikes me as a suicidal strategy. People whose health, safety, and security depend on rapid and robust adaptation measures—shoring up coastal barriers, eradicating disease-bearing insects, controlling floods, protecting crops from new migrating pests, and securing drinking water supplies—will have sharply diminished tolerance for protracted NEPA litigation, for avoiding all impacts to endangered species, for staying out of wetlands, for conserving water supplies, and for other environmental protection and conservation measures taken as a given today.

Giving no ground by behaving as if the climate adaptation demand for new infrastructure is like today's highway project, or as if the demand for deploying new pesticides is like today's FIFRA registration challenge, or as if the need to clear habitat for new agricultural land development or new infrastructure is like today's endangered species conflict, will be a sorely misguided strategy. This is not to say environmental law must simply go away, but taking a hard-line position of enforcing all existing environmental laws to the hilt will ignite a furious backlash that could open the door to a wholesale rollback of regulatory programs, and with broad and deep public support for doing so.

So the more realistic question to ask is, what can environmental law do now to become more facilitative of climate change adaptation without sacrificing core values and goals? We do not want to throw the baby out with the bathwater. Several strategies seem viable and capable of being implemented under existing laws. The following descriptions of their core approaches use federal law as the medium for explanation, but they could be instituted at state and local levels as well.

172. See generally IPCC, *supra* note 46.

173. Richard J. Pierce Jr., *Pipeline Opposition Impedes Climate Change Mitigation*, REG. REV., Sept. 13, 2018, <https://www.theregreview.org/2018/09/13/pipeline-opposition-impedes-climate-change-mitigation/>.

174. Ian Carey, *The Great Economy Versus Environment Myth*, HUFFPOST, June 5, 2012, https://www.huffingtonpost.com/ian-carey/the-great-economy-versus-_b_1398439.html.

175. Thomas J. Pyle, *Environmentalists' Worst Enemy May Be Their Own Policies*, FORBES, Aug. 11, 2014, <https://www.forbes.com/sites/realspin/2014/08/11/environmentalists-worst-enemy-may-be-their-own-policies/#701bbac3a61d>.

176. Roger Pilon, *Property Rights and Environmental Protection*, CATO INST., June 27, 1995, <https://www.cato.org/publications/congressional-testimony/property-rights-environmental-protection>.

177. John D. Sutter, *Trump's "Ridiculous" Tweet About California Wildfires*, CNN, Aug. 8, 2018, <https://www.cnn.com/2018/08/07/health/trump-tweet-california-wildfire-water-invs/index.html>.

A. *Maximize Connections to Public Health and Safety*

Although some corners of environmental law are closely tied to promoting public health, such as air pollution regulations, that connection has not often been drawn to natural resources programs such as the ESA and §404, and protecting public safety has generally not been a theme of environmental law. More could be done on this front. The ecosystem services theme that has gained prominence in the past two decades is aimed in this direction.¹⁷⁸

For example, wetlands provide water purification and groundwater recharge services as well as protection against inland flooding and coastal storm surges. Wherever it can be shown that robust protection of natural resources promotes climate change adaptation strategies, those connections should be made and widely advertised. This will only go so far, however, as those connections must be shown to be real and credibly assessed.

B. *Establish Criteria for What Qualifies as a Climate Change Adaptation Action*

Clearly, not every action and project should be considered as furthering climate change adaptation, hence it will be important to establish a set of criteria for designating a project as truly serving necessary and urgent climate change adaptation and thus qualifying for the approaches outlined below. A multiagency commission could be charged with evaluating which projects qualify. This could very likely be instituted by a presidential Executive Order establishing the commission, outlining the goals, and directing executive agencies to use existing authorities to achieve them.

C. *Embrace Compensatory Mitigation*

Although compensatory mitigation already is deeply embedded in many programs, most prominently in §404 wetlands mitigation banking,¹⁷⁹ it needs to be expanded, simplified, and made widely available. Climate adaptation, especially shoring up or relocating built environment infrastructure, is going to have extensive impacts on natural resources, and holding to the strategies of avoid and minimize preferred in today's environmental programs will be problematic.

Also, the Obama Administration's stated goal of having compensatory mitigation produce net environmental benefits, even when not required by law (it seldom is),¹⁸⁰

which the Trump Administration rescinded,¹⁸¹ would be a magnet for opposition. Something closer to the ESA's "maximum extent practicable" standard for qualifying actions, which does not require full compensation (much less net benefits) could be workable.¹⁸² Section 404 of the CWA itself imposes no standard; indeed, it does not mention mitigation¹⁸³—Congress required the U.S. Army Corps of Engineers (the Corps) to establish "performance standards" for mitigation in a 2004 military appropriations bill, but they also imposed no outcome standard.¹⁸⁴ It may also be necessary to allow compensatory mitigation after the fact, so as to expedite necessary projects.

D. *Expedite Processes*

Speaking of which, there already is a fierce debate over whether predecision impact assessment processes such as NEPA, ESA §7, and FIFRA registration take too long to complete and are too costly. That debate will only intensify as important adaptation measures are at stake. But mandatory page limits and time limits are not needed across the board, as the Trump Administration is seeking.¹⁸⁵ Rather, qualifying climate adaptation projects could be moved to an alternative consolidated impact assessment "fast track" under which one document would serve all such review programs, only "no action" and "proposed action" would be considered as the alternatives, and mandatory time frames would be in effect. Nothing in NEPA, §7 of the ESA, or §404 of the CWA precludes such an approach for land development projects. The respective agencies (Council on Environmental Quality, EPA, and the Corps) could therefore promulgate regulations establishing this approach.

E. *Leverage Statutory Substantive Flexibility*

Many of our current environmental laws actually are sufficiently flexible to allow regulators to scale back on controls and conditions where appropriate to facilitate important climate adaptation initiatives. For example, §404(b)(1) of the CWA, which authorizes EPA to promulgate water degradation guidelines for the Corps' issuance of §404 permits, does not establish any fixed standards or limits.¹⁸⁶ By cross-reference to §403(c),¹⁸⁷ it simply lists the types of effects the guidelines must address. And EPA is authorized in §404(c) to veto a Corps permit only if it will result in an "unacceptable adverse effect" on any of several specified resources.¹⁸⁸

178. The Economics of Ecosystems & Biodiversity, *Ecosystem Services*, <http://www.teebweb.org/resources/ecosystem-services/> (last visited Nov. 26, 2018).

179. U.S. EPA, WETLANDS COMPENSATORY MITIGATION FACT SHEET, https://www.epa.gov/sites/production/files/2015-08/documents/compensatory_mitigation_factsheet.pdf.

180. Presidential Memorandum: Mitigating Impacts on Natural Resources From Development and Encouraging Related Private Investment, 80 Fed. Reg. 68743 (Nov. 6, 2015), available at <https://obamawhitehouse.archives.gov/the-press-office/2015/11/03/mitigating-impacts-natural-resources-development-and-encouraging-related>.

181. Exec. Order No. 13783, 82 Fed. Reg. 16093 (Mar. 31, 2017).

182. 16 U.S.C. §1539(a)(2)(B)(ii).

183. 33 U.S.C. §1344.

184. National Defense Authorization Act for Fiscal Year 2004, Pub. L. No. 108-136, §314, 117 Stat. 1392, 1393 (2003).

185. Fact Sheet, The White House, President Donald J. Trump's Administration Is Improving Inefficient Permitting Reviews (Apr. 9, 2018), <https://www.whitehouse.gov/briefings-statements/president-donald-j-trumps-administration-improving-inefficient-permitting-reviews/>.

186. 33 U.S.C. §1344(b)(1).

187. *Id.* §1343(c).

188. *Id.* §1344(c).

Similarly, FIFRA pesticide registration is held to a standard of not imposing “unreasonable adverse effects on the environment,” defined to require a cost-benefit analysis.¹⁸⁹ EPA very likely would have the authority to carve out qualifying climate change adaptation infrastructure projects and pesticide registrations for a specialized set of guidelines as to what are “unacceptable” and “unreasonable” environmental impacts. Even the ESA, often depicted as rigid and demanding, has room for flexing on behalf of climate adaptation projects. For example, given that it operates on a species-wide assessment scale, very few projects today result in the dreaded “jeopardy” finding under the inter-agency consultation provision of §7,¹⁹⁰ and the §10 permitting process for nonfederal actions leaves ample room for using compensatory mitigation flexibly.¹⁹¹

F. Institute “Repair Accounts” and “Repair Planning” to Offset Relaxed Standards

The quid pro quo for all of the above could be to keep track of impacts that were not avoided, minimized, or mitigated because of the above measures, and put them in a “repair account” tagged to the entities carrying out the project. A condition of the permits covering the project could be to develop a “repair plan” that would require fixing or compensating for those impacts in the future when it makes sense to do so. For example, repair efforts might not be prudent while temperatures are past 2°C and still rising.

G. Conclusion

These and similar measures within reach under existing environmental laws may not provide enough “flex” to accommodate needed adaptation initiatives, in which case the statutory can of worms might need to be opened up. That prospect could be ugly for environmental law. It behooves those interested in keeping environmental protection and conservation in play for adaptation policy, therefore, to find creative ways of molding today’s environmental programs to meet tomorrow’s climate adaptation needs while maintaining as much of the core goals in place as possible.

I appreciate that this sounds like a call for compromise—because it is—and that environmentalists have long been wary of compromises, likening them to sleeping with the enemy. But when it comes to climate change adaptation, refusing to compromise is a fool’s errand. The challenge will be in designing compromises that allow important climate change adaptation measures to go forward without imposing unnecessary adverse environmental impacts and without opening the door too wide to what qualifies for more flexible treatment. The sooner environmental institutions begin thinking about this challenge and crafting approaches like those described above, the sooner they will

be perceived as a friend of adaptation asking only for reasonable environmental safeguards.

XIII. Memo to Environmentalists: Brace for Problems of Preemption, Property Rights, and Political Scale

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It is a daunting moment for environmentalists. Each day, it appears federal environmental law is being systematically dismantled, most aggressively by the executive branch,¹⁹² but with tacit support from the sitting legislature, and—with record numbers of President Trump’s judicial nominees sailing through the appointments process¹⁹³—likely soon with increasing support from the judiciary. Environmental advocates are grieving these losses, but we must also brace for new hurdles—and, in particular, the “Three Ps”: *preemption*, *property rights*, and *political scale*.

First, we must ensure that the campaign to dismantle federal environmental law does not spill over into displacing state and local efforts to fill the void. Then, we must push back against the strategic deployment of property rights to block future efforts to reinvigorate federal environmental law. Finally, we must think creatively about how to accomplish the goals of national-level environmental policy without the benefit of federal authority. This essay, a memo to environmentalists at this pivotal moment in time, reviews each of these challenges in turn.

A. Preemption

Preemption refers to the ability of a higher level of government to override contrary decisions made by a lower level of government. It matters a lot in environmental law, where important roles are played by federal, state, and local decisionmakers. Federal environmental statutes often partner national and local regulators in distinct but interlocking roles within larger programs of cooperative federalism—in which the feds usually set standards and oversee compliance, while state and local actors decide how best to implement standards for local circumstances.¹⁹⁴ These laws usually follow the model of “floor preemption,” establishing a federal “floor” of mandatory regulation that states may not fall below, but one that allows them to set more stringent regulations to address local concerns and preferences.¹⁹⁵

192. Popovich et al., *supra* note 141.

193. Tessa Berenson, *President Trump Appointed Four Times as Many Federal Appeals Judges as Obama in His First Year*, TIME, Dec. 15, 2017, <http://time.com/5066679/donald-trump-federal-judges-record/>.

194. Erin Ryan, *Environmental Federalism’s Tug of War Within*, in THE LAW AND POLICY OF ENVIRONMENTAL FEDERALISM: A COMPARATIVE ANALYSIS 355 (Kalyani Robbins ed., Edward Elgar Publishing 2015).

195. See William Buzbee, *Asymmetrical Regulation: Risk, Preemption, and the Floor/Ceiling Distinction*, 82 N.Y.U. L. REV. 1547 (2007).

189. 7 U.S.C. §136(bb).

190. 16 U.S.C. §1536(a)(2).

191. *Id.* §1539(a)(2).

Federal environmental laws do not usually prevent states from exceeding the federal floor, but there are exceptions—for example, automobile emissions standards. EPA has primary authority to set these standards, and states are generally forbidden from both raising and lowering them.¹⁹⁶ Even so, §209 of the CAA authorizes California to set more stringent standards in light of its unique regional challenges¹⁹⁷—and under §177, other states may elect California's stricter standard in lieu of the EPA "ceiling."¹⁹⁸ The interplay between state and federal standard-setting under the "California waiver"¹⁹⁹ blunts the force of this example of "ceiling preemption,"²⁰⁰ which is generally rare in U.S. environmental law. But with mounting hostility to environmental regulation, that could change.

Which brings us to the first challenge that environmental advocates will likely face: the increasing threat of anti-environmental federal preemption. Proponents of deregulation seem poised to roll back many federal standards, but thanks to our dynamic model of environmental federalism, that is not enough to accomplish their goal. State and local leaders are already hard at work resuscitating environmental governance initiatives abandoned by the federal government. For example, the United States Climate Alliance is a coalition of 17 states and territories committed to upholding the objectives of the 2015 Paris Agreement within their borders, formed the very day President Trump withdrew the United States from the accord.²⁰¹ (Indeed, I have never been more grateful for American federalism than I am right now.)

For deregulation interests to fully succeed, then, they must prevent state and local governments from simply taking up the vacated federal seat at the regulatory table. For that reason, "Team Deregulation" is unlikely to simply withdraw the federal government from the regulatory field entirely, which would swing open the door to state law making. Instead, they are likely to seek weaker regulations partnered with language expressly preempting contrary state or local rules. If they cannot muster the political capital to get express preemption into the text, then they will attempt to persuade a reviewing court to imply it.

To wit, the Trump Administration is already trying to get rid of the CAA's California waiver.²⁰² Since the Administration is trying to roll back the Obama-era rule increasing emission standards to 54 miles per gallon (mpg) by

2025,²⁰³ this is the next logical step—otherwise, the states could simply ignore EPA's looser rules and follow California's more stringent alternative. That is why the same rollback of the 54-mpg standard also eliminates California's ability to keep it.²⁰⁴ It is critical that environmentalists preserve the ability of states to continue moving forward on emissions controls, even as the federal government attempts to take us backward.

With all this in mind, environmental advocates must identify and fortify those realms of federal environmental law most vulnerable to ceiling preemption after federal regulations are weakened. We must ensure that neither Congress nor EPA pairs federal deregulatory efforts with statutory or regulatory language field-preempting subnational interference. And we will need to think carefully about other ways to safeguard the environment—which brings us to the next P.

B. Property Rights

Even as we respond to the current assault on federal environmental law, we also need to think ahead. Deregulation interests know that even if they succeed in dismantling those laws today, that will not be enough, since a shift in national leadership could always bring them back in the future. So, here is a riddle: what is the best way to prevent that from happening?

Public law norms generally prevent governmental decisionmakers from binding their future counterparts, so legal rules enacted today can ordinarily be revisited in the future. But that is not always the end of the issue, thanks to another of Team Deregulation's favorite strategies. The answer to the riddle: fortify the nonregulatory status quo with property rights.

Private property rights are a democratic foundation—a bulwark of protection for individuals against power—but they can be manipulated in contexts where public and private rights overlap, as they so often do in environmental law. Here in the United States, few legal concerns command more focused constitutional attention than threats to private property. They receive the full force and attention of the Fifth and Fourteenth Amendments' Takings Clauses, which require compensation when the government "takes" property for public use.²⁰⁵ The definition of "take" continues to evolve, however, and these clauses are sometimes interpreted to require compensation for any public regulation that interferes with private economic use of property, even when that use is harming the public.²⁰⁶ Moreover, private claims often fail to account for counter-

196. Clean Air Act, tit. II, Emissions Standards for Moving Sources, Pub. L. No. 101-549, 104 Stat. 2399 (1990) (codified as amended in scattered sections of 42 U.S.C.).

197. 42 U.S.C. §7543.

198. *Id.* §7507.

199. U.S. EPA, *Vehicle Emissions California Waivers and Authorizations*, <https://www.epa.gov/state-and-local-transportation/vehicle-emissions-california-waivers-and-authorizations> (last updated June 23, 2017).

200. Ann Carlson, *Iterative Federalism and Climate Change*, 103 N.W. U. L. REV. 1097 (2009).

201. U.S. EPA, *Home Page*, <https://www.usclimatealliance.org> (last visited Nov. 26, 2018).

202. Robinson Meyer, *The Coming Clean-Air War Between Trump and California*, ATLANTIC, Mar. 6, 2017, <https://www.theatlantic.com/science/archive/2017/03/trump-california-clean-air-act-waiver-climate-change/518649/>.

203. Timothy Cama & Miranda Green, *Trump Moves to Roll Back Obama Emission Standards*, HILL, Aug. 2, 2018, <https://thehill.com/policy/energy-environment/400036-trump-submits-rule-to-weaken-iconic-obama-car-efficiency-standards>.

204. *Id.*

205. Legal Information Institute, *Takings*, <https://www.law.cornell.edu/wex/takings> (last visited Nov. 26, 2018).

206. Bill Funk, *CPR Perspective: The Takings Clause of the Fifth Amendment*, CENTER FOR PROGRESSIVE REFORM, <http://www.progressivereform.org/perspectives/takings.cfm> (last visited Nov. 26, 2018).

vailing public property rights in related public commons natural resources.

The “takings-ification” of American property law has been gathering force over time, and today, nothing can take down an environmental regulation more efficiently than the claim that it constitutes a taking. Which is why, from the perspective of Team Deregulation, it is such a winning strategy. Rather than just dismantling environmental regulations that prevent extraction from public lands, much better to issue as many oil and gas leases on these newly opened public lands as possible.²⁰⁷ Those leases do not just yield an extractive win for industry in the present, they will complicate efforts to dial extraction back in the future, because private extractive rights will then have a thick layer of constitutional protection. Prof. Christopher Serkin has persuasively shown how government actors have learned to consolidate their power in the present, protecting it from changed policy preferences in the future, by making precommitments into the future through the private law tools of property and contract.²⁰⁸

Environmentalists must push back against the strategic use of property rights to fortify the deregulatory agenda. They must scrutinize efforts to create or reify private entitlements that would entrench environmental deregulation by preventing more stringent scrutiny in the future. They must also better educate lawmakers and judges about the complex relationships within property and environmental law, to refute the misguided takings-ification that occurs when we fail to account for the overlapping public and private interests in natural resources. As federal law often borrows from state-law concepts of property, we can never ignore the importance of continuing to develop the common law of property through litigation in state courts. Which brings us, incidentally, to the third and final P challenge.

C. Political Scale

With federal environmental law under sustained attack, it becomes incumbent on us to think more seriously about how to continue pursuing solutions to national-level environmental problems by means other than federal authority. More than ever, we are facing interjurisdictional challenges that cannot be managed effectively in a piecemeal manner.²⁰⁹ Some 50 years ago, we conceded that problems like air and water pollution, species loss, and climate change went beyond any single state’s boundaries, or capacity.²¹⁰ After the failure of the patchwork-of-states approach,

iconic federal laws like the Clean Air and Clean Water Acts recognized the importance of centralized national authority to cope with these problems.²¹¹

But what if national authority ends? Disheartening as it may be, we need to think about new strategies for large-scale environmental governance that do not rely on federal law. We should keep fighting to get federal law back—but in the meantime, the environment cannot wait.

The clearest alternative is regional governance. The patchwork approach was ineffective and challenging for industry, but what if many states used the same law? Perhaps we should consider the development of uniform state laws or model codes that would enable states to coordinate on a broader regulatory scale. Successful examples like the Uniform Commercial Code,²¹² the *Model Rules of Professional Conduct*,²¹³ and other widely adopted laws provide a deliberated, tested model for states seeking sound, consensus-based policies in complex realms of law. States could adopt them in the wake of withdrawn federal law or for wholly new areas, addressing climate change, water pollution, and waste management. For example, universities nationwide are collaborating on the multidisciplinary development of the Sustainable Development Code to provide best sustainability practices for adoption by local governments.²¹⁴

Uniform laws provide an obvious model for coordinated but nonfederal national response, but we might even consider less conventional means. Legal pluralism heralds the possibility of multiple sources of simultaneous normative policymaking, including sources beyond sovereign-based law.²¹⁵ Could private or nongovernmental rules contribute to large-scale environmental action? Perhaps there could be meaningful guidance or rulemaking by commercial associations like the American Arbitration Association, professional associations like the American Law Institute, nongovernmental legal institutions like the Council of Mayors, religious organizations, trade organizations, universities, and others?

In fact, here is a concrete example that puts some of these ideas together. We all know that climate is the largest-scale environmental problem of all, ideally calling not only for national but international policymaking. Yet a substantial volume of climate-relevant decisionmaking occurs within individual homes and neighborhoods.²¹⁶ And in the United States, a large volume amount of that decisionmaking takes place through private homeowner associations (HOAs). One in five Americans live in property subject to

207. Darryl Fears, *Trump Administration Tears Down Regulations to Speed Drilling on Public Land*, WASH. POST, Feb. 1, 2018, <https://www.washingtonpost.com/news/energy-environment/wp/2018/02/01/trump-administration-tears-down-regulations-to-speed-drilling-on-public-land>.

208. Christopher Serkin, *Public Entrenchment Through Private Law: Binding Local Governments*, 78 U. CHI. L. REV. 879, 894-95 (2011).

209. See Erin Ryan, *Federalism and the Tug of War Within: Seeking Checks and Balances in the Interjurisdictional Grey Area*, 66 MD. L. REV. 503, 567-84 (2007). See also ERIN RYAN, *FEDERALISM AND THE TUG OF WAR WITHIN* 145-59 (2012).

210. *Id.*

211. John P. Dwyer, *The Practice of Federalism Under the Clean Air Act*, 54 MD. L. REV. 1183, 1191 (1995).

212. See generally U.C.C. (1977).

213. MODEL RULES OF PROF’L CONDUCT (1983).

214. News Release, Drake University, Drake Law School Forms Partnership to Update Sustainable Community Development Code (Feb. 1, 2017), <https://news.drake.edu/2017/02/01/drake-law-school-forms-partnership-to-update-sustainable-community-development-code/>.

215. Paul Schiff Berman, *Global Legal Pluralism*, 80 S. CAL. L. REV. 1155 (2007).

216. Courtney St. John, *Changing Household Behavior to Reduce Carbon Emissions*, ST. PLANET, Jan. 10, 2013, <https://blogs.ei.columbia.edu/2013/01/10/changing-household-behavior-to-reduce-carbon-emissions/>.

HOA governance,²¹⁷ but many are operating without sufficient legal expertise or guidance. Recognizing that problem, many states enact statutes,²¹⁸ municipalities provide guidance,²¹⁹ and private organizations sponsor training materials²²⁰ for HOA board members, to help them make better decisions that strengthen their communities.

So, what if we could impact climate policy by harnessing the private law influence of HOA decisionmaking on climate-relevant matters? Borrowing, perhaps, from parts of the Sustainable Development Code already in progress,²²¹ legal architects could draft a model code of HOA best practices on water conservation, renewable energy use,

transportation considerations, and other issues that impact the nation's climate footprint. A model code could also discourage HOAs from preventing solar panels, clotheslines, rain barrels, or other sustainable practices, and they could encourage landscaping practices that limit pesticide and nutrient loading of waterways.

In the end, overcoming the Three Ps will require novel ideas—but we will need some ambitious thinking to move forward in the difficult days to come. After all, necessity is the mother of creativity—and has there ever been greater need than right now?

217. Ernie Smith, *Study: Homeowners Associations Hit New Population Peaks*, Ass'ns Now, May 15, 2015, <https://associationsnow.com/2015/05/study-homeowners-associations-hit-new-population-peaks/>.

218. FLA. STAT. §720 (2018).

219. Henrico County, Virginia, *Homeowners' Associations*, <https://henrico.us/revit/hoas/> (last visited Nov. 26, 2018).

220. HOMEOWNER ASSOCIATIONS USA, A GUIDE FOR HOMEOWNER ASSOCIATION BOARD MEMBERS (2010).

221. DRAKE UNIVERSITY, DRAFT CLIMATE CHAPTER, SUSTAINABLE COMMUNITY DEVELOPMENT CODE, https://drive.google.com/file/d/1TolghETH_nuaOCZmz9ck9PFYCJOS-lrb/view.